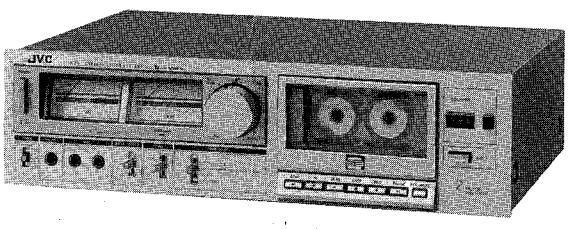
JVC

SERVICE MANUAL

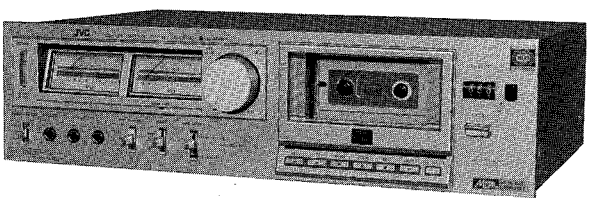
MODEL

KD-A33 A/B/C/E/J/U

STEREO CASSETTE DECK



KD-A33 A/C/J/U



KD-A33 B/E

No. 4189
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Specifications

Type : Stereo cassette deck
Track system : 4-track, 2-channel
Tape speed : 1-7/8 inch/sec (4.8 cm/sec)
Frequency response :
(0 VU recording)
Metal tape *1; 30–12,500Hz (±3dB)
SA/Chrome tape *2; 30–8,000Hz (±3dB)
SF/Normal tape *3; 30–8,000Hz (±3dB)
(-20 VU recording)
Metal tape *1; 20–18,000Hz
30–16,000Hz (±3dB)
SA/Chrome tape *2; 20–18,000Hz
30–16,000Hz (±3dB)
SF/Normal tape *3; 20–17,000Hz
30–15,000Hz (±3dB)
Surpasses DIN 45 500
Note: *1 ... SCOTCH METAFINE or Equivalent
*2 ... TDK SA or Equivalent
*3 ... MAXELL UD or Equivalent
S/N ratio : 60dB (from peak level, weighted, Metal tape)
The S/N is improved by 5dB at 1kHz and by 10dB above 5kHz with ANRS on.
(DIN 45 500 weighted)
Effect of Super ANRS : (normal tape)
Improvement of S/N: the same as with ANRS
Improvement of frequency response:
0VU recording; 6dB at 10kHz
+5VU recording; 12dB at 10kHz
Improvement of distortion:
0VU recording; 3% or less at 10kHz
+5VU recording; 3% or less at 10kHz
Wow and flutter : 0.04% (WRMS),
0.14% (DIN 45 500)
Crosstalk : 65dB (1kHz)
Harmonic distortion : K3; 0.4%, THD; 1.0%
(metal tape, 1kHz 0VU)

Bias : AC bias
Erasure : AC erasure (85kHz)

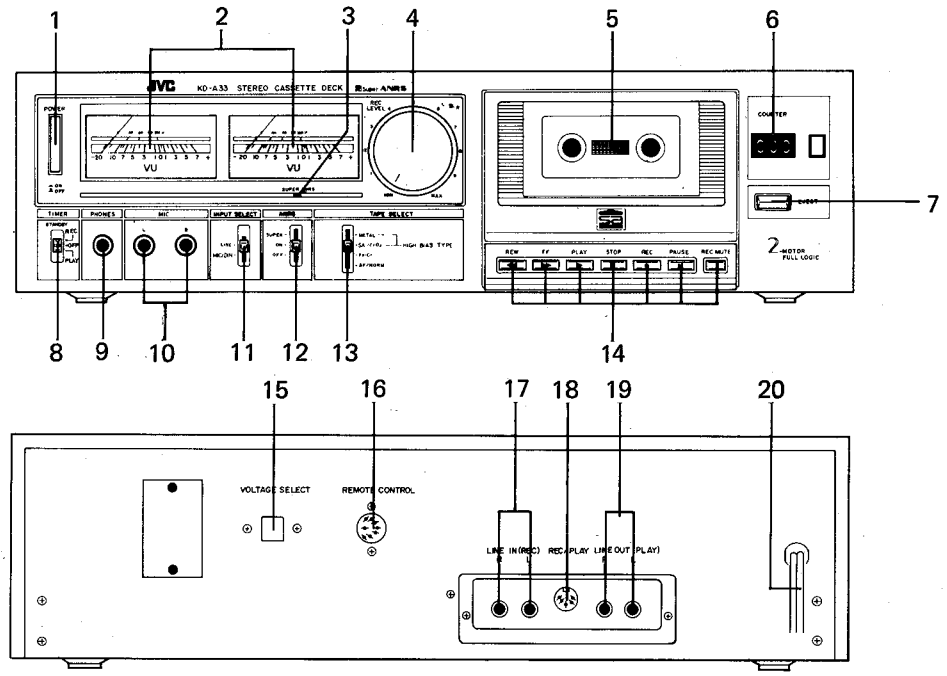
Heads : 2 heads
SEN ALLOY head for recording/playback and 2-gap SEN ALLOY head for erasure
Motors : Electronic Gaverned DC motor (for Capstan)
DC motor (for Reel)
Fast forward time : 85 sec. with C-60 cassette
Rewind time : 85 sec. with C-60 cassette
Semiconductors : 7 ICs, 57 transistors, 31 diodes
Input terminals :
Mac jack x 2 ; Max. sensitivity; 0.2mV (-72dBs)
Matching impedance; 600Ω–10kΩ
Input jack x 2 ; Min. input level; (80mV (-20dBs)
Input impedance; 100kΩ
Output terminals :
Output jack x 2 ; Output level; 300mV
Output impedance; 5kΩ
Phones jack x 1 ; Output level; 0.3mW (8Ω)
Matching impedance; 8Ω–1kΩ
DIN socket : Min. input level; 0.1mV/kΩ
Input impedance; 10kΩ
Output level; 300mV (8Ω)
Output impedance; 5.5kΩ
Matching impedance; 50kΩ or more
Power requirement : AC 240/220/120V, 50/60Hz (KD-A33A/B/C/E/J)
AC 240/220/120/100V, 50/60Hz (KD-A33U)
Power consumption : 21W
Dimensions : 16-1/2" (420mm) W
4-3/4" (120mm) H
11-7/8" (300mm) D
Weight : 14.7 lbs (6.7 kg)

Design and specifications are subject to change without notice.

Features

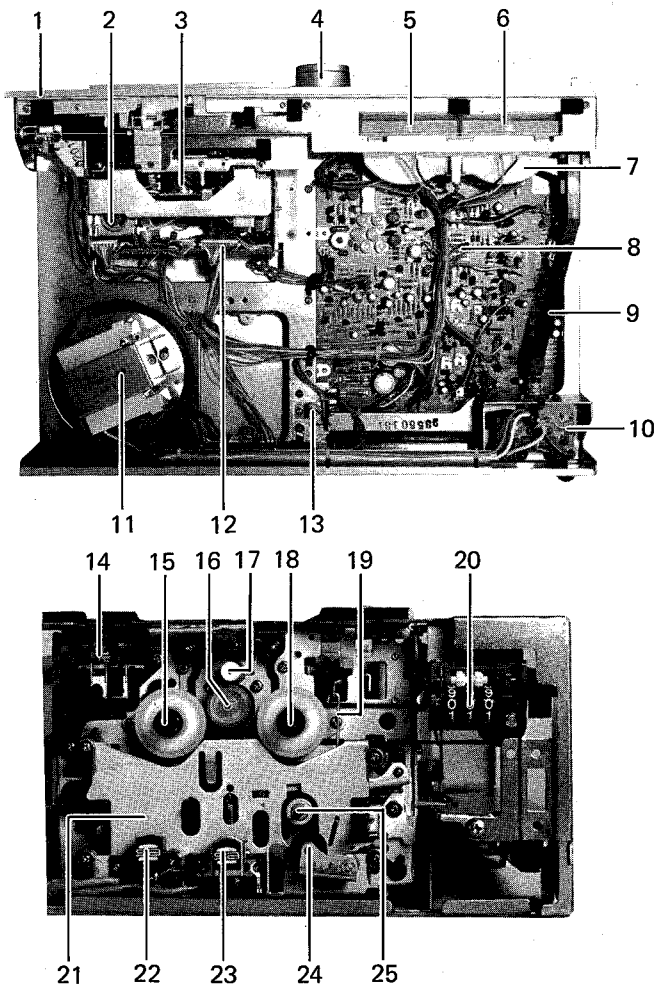
- Single lever 4-stage tape select switch makes the KD-A33 compatible with all types of tape including the new metal Tape format.
- Full logic control with 2-motor independent drive mechanism.
- SA (SEN-ALLOY) record/play head with wear resistance comparable with ferrite and sound quality better than Permalloy.
- Highly efficient SA (SEN-ALLOY) erase head capable of erasing high-coercivity Metal Tape.
- Self-illuminating control buttons clearly indicate the operational mode. (REC, PLAY and PAUSE)
- ANRS and Super ANRS greatly reduce tape hiss-noise and improve linearity at high frequencies.
- Continuous stand-by mechanism with REC-OFF-PLAY switch for greater facility in unattended recording.
- REC MUTE button, convenient for leaving a non-recorded section on the tape between programs.
- Remote Control terminal for operating the deck from a distance using the optional R-50E Remote Control Unit.

Controls and Connections



1 POWER switch
2 VU meters
3 Super ANRS indicator
4 REC LEVEL controls (forward knob – Left channel; rearward knob – Right channel)
5 Cassette holder
6 Tape counter/counter reset button
7 EJECT button
8 TIMER STANDBY switch
9 PHONES jack
10 MIC jacks
11 INPUT SELECT switch
12 ANRS switch
13 TAPE SELECT switch
14 Cassette operation buttons
◀◀ REW (rewind) button
▶▶ FF (fast forward) button
▶ PLAY button
■ STOP button
o REC (record) button
II PAUSE button
REC MUTE button
15 Voltage select switch
16 REMOTE CONTROL socket
17 LINE IN (REC) terminals
18 REC/PLAY socket (DIN socket)
19 LINE OUT (PLAY) terminals
20 Power cord

Main Parts Location



1. Front panel assembly
2. DC solenoid for playback
3. Reel motor
4. Variable resistor (INPUT LEVEL control)
5. Right channel level meter
6. Left channel level meter
7. Meter cover
8. Main Amp. P.W. Board assembly
9. Remote bar for power switch
10. Power switch P.W. Board
11. Power transformer
12. Mecha control P.W. Board assembly
13. IC903 (Power supply integrant circuit with heat sink bracket)

[Mechanical parts]

14. Switch holder (left switch)
15. Supply reel assembly
16. Idler assembly unit
17. Pully of reel motor
18. Take-up reel assembly
19. Connecting wire (for play solenoid)
20. Counter assembly
21. Slide base assembly
22. Erase head
23. REC/PB head
24. Pinch roller assembly
25. Capstan

Maintenance

To get long, trouble-free service, maintenance is important. Do not forget cleaning and demagnetizing.

Cleaning

After long use, the heads and tape part – capstan, pinch roller, etc. – will become dirty with dust or magnetic particles. Dirty heads cause imperfect erasing or high frequency drop-off. A dirty capstan and pinch roller will cause unstable tape speed, leading to increased wow and flutter. Always keep them clean by following the procedure below.

1. Heads

1) Push Eject button to open the cassette holder.
2) Use the head cleaning stick provided to wipe the surface where the tape comes into contact with the head. (It is effective to moisten the cotton with alcohol.)

2. Pinch rollar and capstan

Do the same method as heads.

3. Cabinet

When the cabinet becomes dirty, wipe it with a soft cloth soaked with a neutral cleaning solution of a polishing cloth.

* Do not use thinner or benzine.

Demagnetizing

The heads are made from a material resistant to magnetization, but after long use they become magnetized.

A magnet brought into their vicinity can magnetize the heads, causing excess noise. If noise seems to have increased, demagnetize the heads with a head demagnetizer through the following procedure.

1. Turn the POWER switch OFF.
2. Wrap the tip of the demagnetizer with vinyl tape or soft cloth so as not to damage the head surface. Switch on the demagnetizer and bring it close to the head.
3. Move the tip of the demagnetizer slowly first to the left and right, then up and down in front of the head. Gradually move it away from the head and switch it off at a distance of more than 30 cm. (12")
4. The erase head need not be demagnetized. The capstan shaft and tape guide should be demagnetized in the same way as the record/playback head.

* Do not bring a magnetized metallic object (a screwdriver, for example) near the head as this will increase noise.

Removal of the Main Parts

Observe care in handing the parts since the parts are small in size and the distance between them are short due to a deck design aimed mainly at compactness and high performance.

- **Enclosure assembly parts**

Cassette door .....

Depress the EJECT button to open the cassette door.

Slide off the cassette door upwards (about 5mm) to unlock its pawls of both sides.

Remove the cassette door forward.

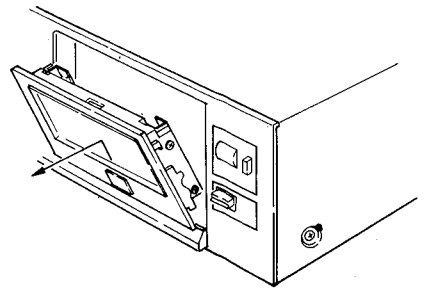


Fig. 1

Top cover .....

Remove 4 screws fastening the top cover.

Control knobs (REC LEVEL) and Lever knobs (INPUT SELECT, ANRS and TAPE SELCT) .....

Pull off them forward.

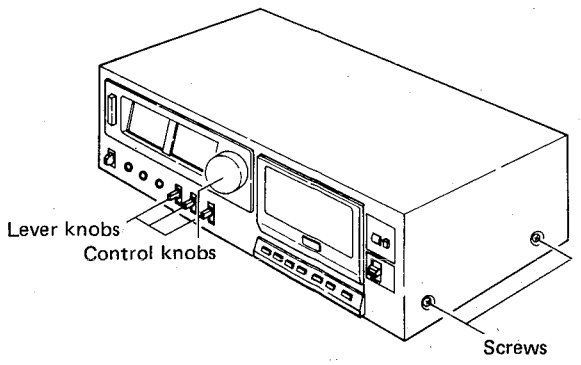


Fig. 2

Bottom cover .....

Remove 5 screws fastening the bottom cover.

Mecha. Control switches assembly .....

(When adjusting or replacing REC/PB head or Erase head)

1) Remove the wires of the control switches from the wire clamp and 2 wire sockets after having removed the top cover.
2) Remove 2 screws positioned below the control switches (on the bottom of the deck) and pull the control section forwards — no need of removing the front panel assembly.

Front plate assembly .....

1) Remove a screw fastening the bracket to mechanical ass'y. — Fig. 3
2) Remove 5 screws (3 screws on upper side and 2 screws on bottom side.) fastening the front plate assembly. — Fig. 4, 5

(Front plate is removed with cassette holder and air dumper related parts.)

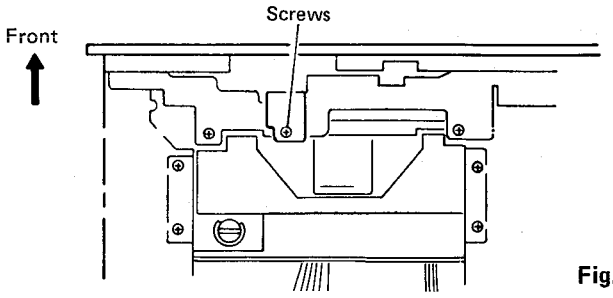
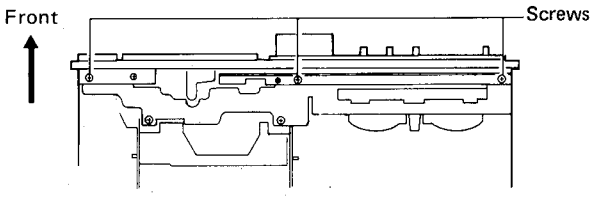
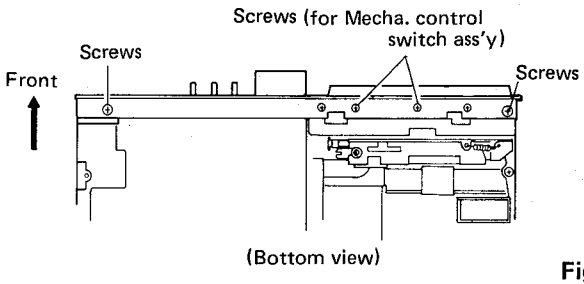


Fig. 3



(Top view)

Fig. 4



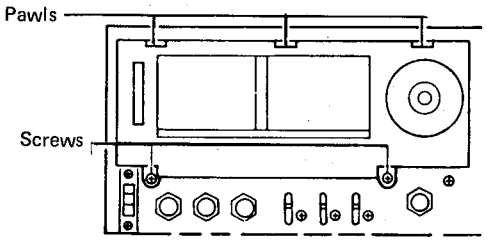
(Bottom view)

Fig. 5

Meter Escutcheon

1) Remove 2 screws fastening the meter escutcheon. (under side.)
2) Remove 3 pawls holding the meter escutcheon (upper side.)

(Meter escutcheon is removed with power knob and LED P.W. Board assembly.)



(Front view)

Fig. 6

Removal of the level meter

To remove 3 pawls of the meter cover, open the frame of front bracket to upper side and then, remove the level meter with meter cover to rear side.

(To remove the level meter, the meter escutcheon need not remove.)

● **Electrical parts**

Mechanical control P.W. Board assembly .....
Remove a screw fastening Mecha. control P.W. Board (on mecha. bracket)

Main amp. P.W. Board assembly .....

1) Related parts of front bracket
Remove 3 screws fastening the lever switches (INPUT SELECT, ANRS and TAPE SELECT)
2) Remove 4 screws fastening the main amp. P.W. board. (on bottom side)
3) Remove 2 screws fastening the escutcheon of pin jack ass'y to rear panel.
4) Pull off the P.W. board to rear and under sides.

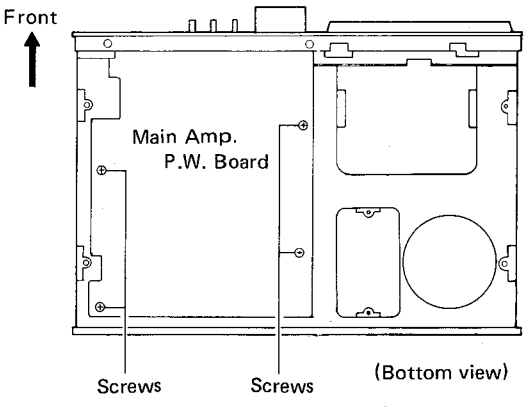


Fig. 7

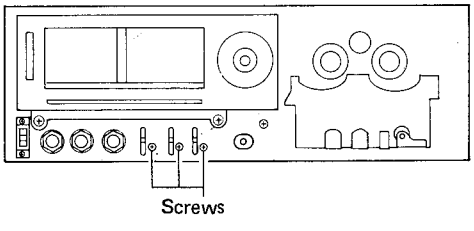


Fig. 8

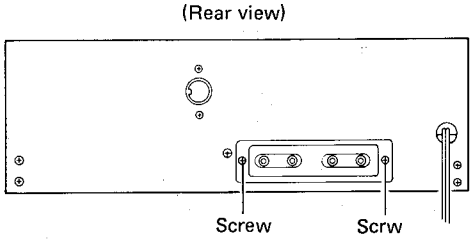


Fig. 9

● **Mechanical assembly**

1. Remove a screw fastening the bracket of mechanical ass'y – (page 5, Fig. 3)
2. Remove 2 screws fastening the front bracket (upper side)
3. Remove a screw fastening the front bracket (right side)
4. Remove 4 screws fastening the amp. chassis (2 screws each)

Note: When assembly the mechanical ass'y .....
Insert the mechanical ass'y to front bracket from rear side, pushing the shift arm from upper side (holding the shift lever tip to upperside and sliding the mechanical ass'y on the amp. chassis, and then, fasten each screws in the same method as at removing, after to check the shift lever tip position to front of the eject bracket.
When fastening the shift arm, push the eject button to check the switch (left side of shift arm) operation.

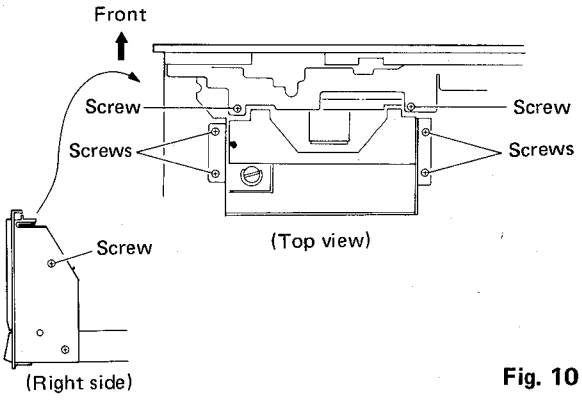


Fig. 10

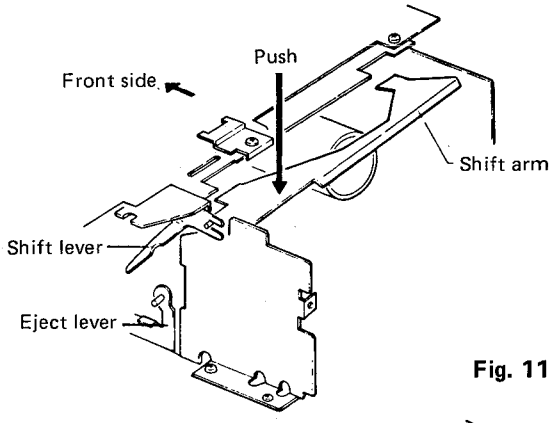


Fig. 11

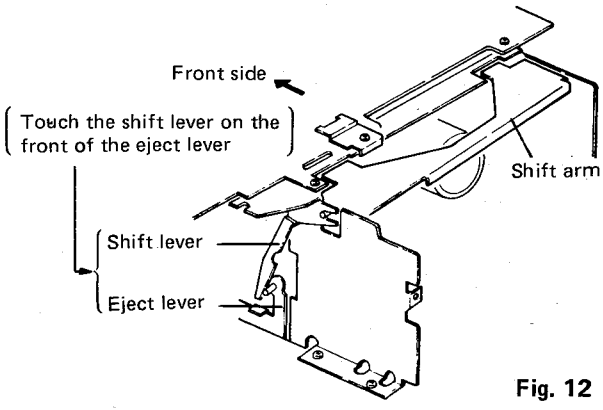


Fig. 12

- **Mechanical parts**

1. REC/PB head .....
   Remove a screw ①
   Work loose a screw ② for adjustment.
2. Erase head .....
   Remove a screw ③
   Work loose a screw ④ for adjustment.
3. Pinch roller arm ass'y .....
   Remove an E-ring ⑤ holding its assembly. Pull it off from the shaft.
4. Supply reel disc .....
   Pull out the reel disc stopper ⑥ and pull out its disc from shaft.
5. Take-up reel disc .....
   Pull out the reel disc stopper ⑦ and remove the counter belt, pull out its disc from shaft.

Note: (1) Remove the reel disc stoppers with a piece of sheet metal inserted between the reel disc and the stopper. (When assembling the reel disk, the stopper need a new parts. (the stopper can not use again.)
(2) Be careful not to stain the counter belt.

6. Reel motor .....
   Remove 3 screws ⑧ fastening the reel motor.
7. Capstan motor .....
   1) Remove a screw ⑨ fastening the rubber stopper.
   2) Remove the capstan belt from the motor pulley.
   3) To remove the motor, turn it in counter-clockwise direction and pull it out backward (with 3 cushions and 3 screws for fastening the motor).

Note: When replacing the motor, check the following points.
(1) Is the motor placed in correct position? (Don't make the motor's position deflective.)
(2) Does the capstan belt run in the center of the motor pulley?

(Front view)

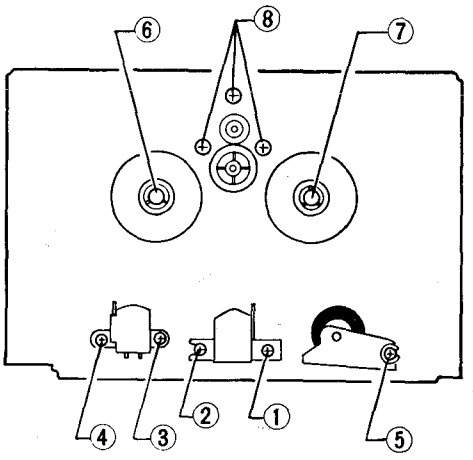


Fig. 13

(Rear view)

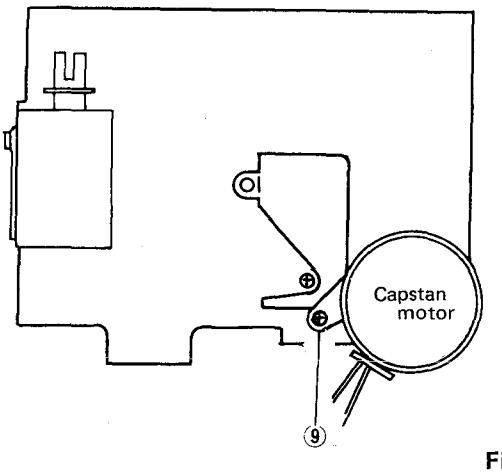


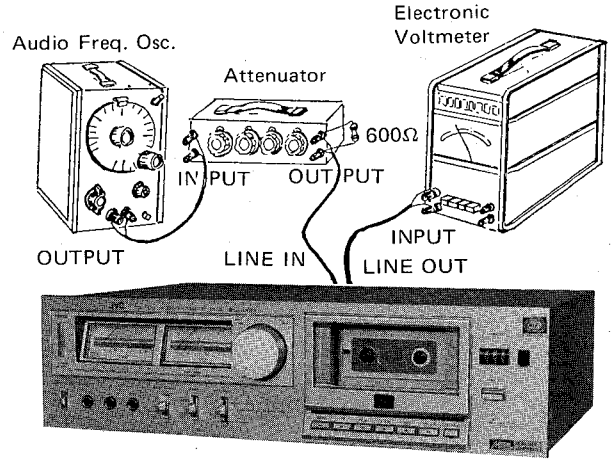
Fig. 14

Main Adjustments

[I] Equipment and measuring instruments used for adjustment

1. Electrical adjustment

1) Electronic voltmeter
2) Audio frequency oscillator
   (range: 50–20kHz and output 0dB with impedance 600Ω)
3) Attenuator
4) Standard tapes for REC/PB
   Maxell UD – SF tape
   TDK SA – SA tape
   SCOTCH METAFINE – Metal tape
   } or equivalent
5) Reference tapes for playback (JVC Test Tape)
   VTT-658 (for head azimuth adj.)
   VTT-656 (for motor speed, wow flutter adj.)
   VTT-664 (for Reference level 1kHz)
   VTT-675N (for playback frequency response)
6) Resistors
   100Ω (for measurement of the bias current)
   600Ω (for attenuator matching)



KD-A33

2. Mechanical adjustment

1) Gauge for checking the head position.
2) Torque gauge
3) Blank tape (C-120) for tape running checker.

[II] Adjustment and repair of the mechanism

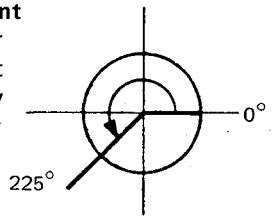
TROUBLESHOOTING HINTS

1. Azimuth adjustment and head replacement

1) Remove the wires of the control switches from the wire clamps after having removed the top cover.
2) Remove the two screws positioned below the control switches (on the bottom of the deck) and pull the control section forwards.
3) With the control section pulled out, azimuth adjustment and/or head replacement can be performed.
   With the JVC cassette deck series of KD-A6, KD-A5 and KD-A8 models, the adjustment of replacement can be performed more easily than with conventional cassette decks which require removal of the entire mechanical section for the adjustments and/or replacements.

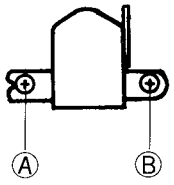
2. Tape-to-head contract adjustment

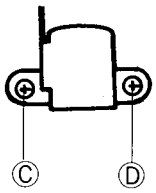
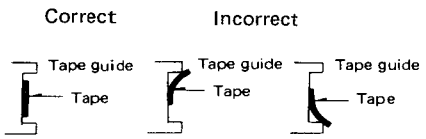
1) Turn the adjusting screw for aligning the erase head until it stops. Then, turn the screw in the reverse direction by 225° (a 5/8 revolution).



2) Check the tape-to-head contact using a C-120 tape having pads.
3) Check it again with a Metal tape.
   Checking method:
   Record a 400Hz or 1kHz signal with 0VU + 20dB. Erase the recording. Checking if the erasing is satisfactorily performed.
4) After adjustment, apply screw bond on the adjusting screw to prevent its loosening.

(Adjust the mechanism or confirm that it is in normal operating condition prior to the adjustment of the electrical circuit.)

Item	Adjustment	Adjusting point	Standard value	Remarks
Adjusting record/playback head position 	1. Connect an electronic voltmeter to the LINE OUT terminals. 2. Play back the VTT-658 test tape. 3. Adjust the head angle with the screw Ⓐ until the reading of the electronic voltmeter becomes maximum for both channels. 4. After adjusting, set the screw with screw bond.	Screw Ⓐ	Maximum	If the head is worn, disconnected or exceedingly magnetized so as not to provide the necessary characteristics, replace it with a new one. After replacement, the head position adjustment as well as the playback level adjustment, the bias current adjustment and the recording level adjustment are all necessary. If the output difference between the left and right channels exceeds 3 – 4dB, the head is defective. Replace it with a new one.

Item	Adjustment	Adjusting point	Standard value	Remarks
Adjusting erase head height 	Employ a special cassette (C-120) from which parts of the casing, where the erase head, record/playback head and capstan engage, has been cut away. Perform tape transport with the cassette tape. Adjust the screw Ⓒ until the tape runs in the center of the erase head tape guide. (See "Troubleshooting hints" aforesaid.) 	Screw Ⓒ		Be sure to perform this adjustment after replacing the erase head.
Adjusting motor speed	Connect a speed meter (an electronic counter) to the LINE OUT terminals. Play back the VTT-656 test tape. Adjust the semi-fixed resistor in the motor until the reading of the speed meter is 3000Hz.	Semi-fixed resistor in the motor	3000Hz	If the speed meter functions as a wow and flutter meter, also, connect the deck to the INPUT terminals of the meter.
Checking playback torque	Employ a torque testing cassette tape for the checking, or remove the cassette cover and use a torque gauge.		40 – 70 gr-cm	If the standard torque is not obtained, replace the take-up disc assembly.
Checking fast forward torque	Measure the torque in the fast forward mode in the same manner as in the above.		More than 70 gr-cm	If the standard torque is not obtained, perform the following. 1. Clean the capstan belt, the idler circumference, the motor pulley, the take-up reel disc circumference, the flywheel circumference, etc. 2. Replace the belt and idler.
Checking rewind torque	Measure the torque in the rewind mode in the same manner as in the above.		More than 70 gr-cm	If the standard torque is not obtained, clean the capstan belt, idler, motor pulley, flywheel circumference, rewinding idler circumference, left reel disc circumference, etc.
Checking wow and flutter	Connect a wow and flutter meter to the LINE OUT terminals. Play back the VTT-656 test tape. Check to see if the reading of the meter is within 0.04% (WRMS).			If the reading becomes moving value even if conforming to the standard, a re-claim may be raised. Repairs are necessary.

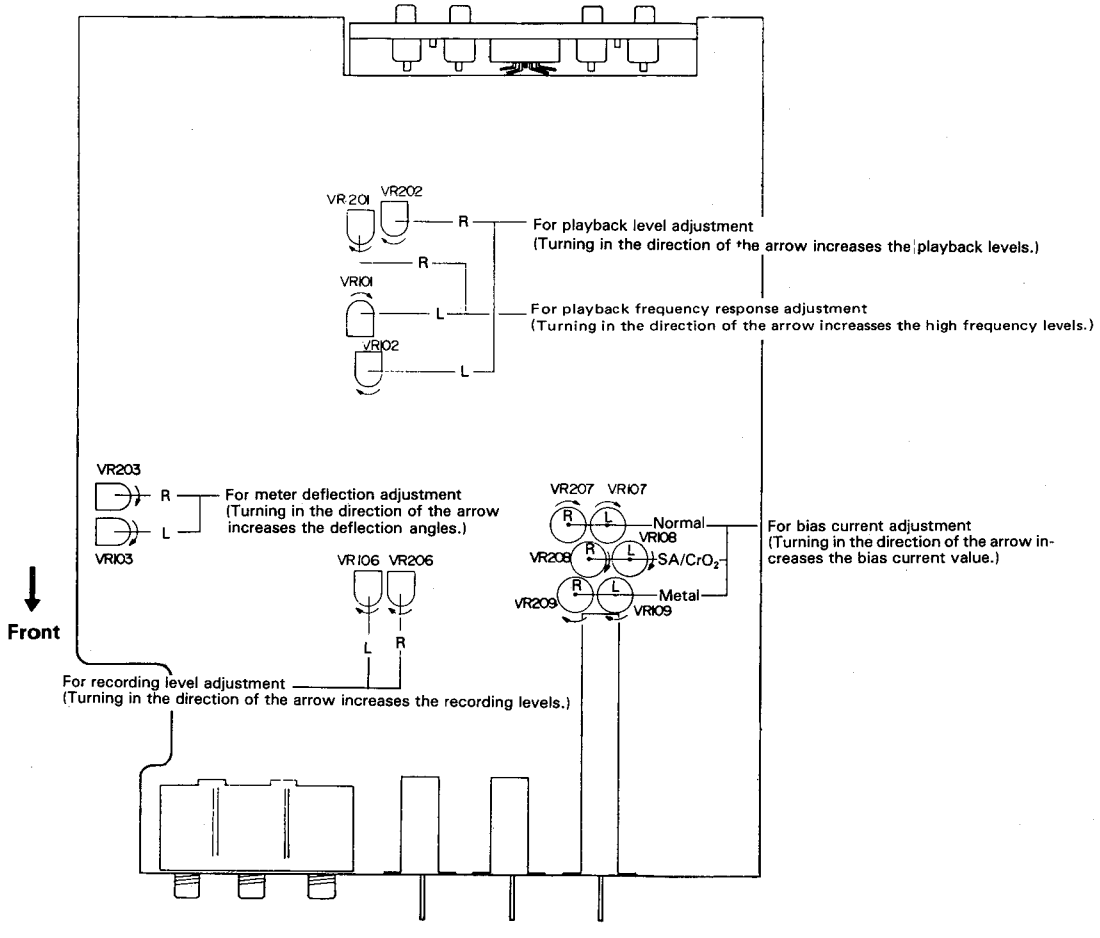
[III] Repair of wow flutter

If wow and flutter increase, check the following points. If there is defect in revolving parts, the wow and flutter generated will increase in proportion to the number of revolutions.
Play a 3000Hz test tape, and defective part can be detected from the sound.

Section	Trouble	Repair
Capstan and flywheel	Capstan shaft has excessive run-out. Flywheel turns heavily. (shaft seisure, thrust play, etc.)	Replace flywheel. Clean the capstan shaft and the groove in the flywheel. Apply oil to the metal position. Replace the capstan assembly.
Pinch roller	Rough rotation (Deformation scratches, or dust) The angular position of the pinch roller is not correct. The pinch roller pressure is not correct.	Replace pinch roller, or pinch roller spring. Clean the pinch roller or apply oil to the rotary shaft. Adjust the pinch roller so that it is parallel with the capstan shaft. Replace the pinch roller spring.
Belt	Belt has undue run-out. Belt is dirty or slippery.	Clean the belt. Replace the belt.
Back tension	Back tension is irregular, or back tension is too strong.	Replace back tension spring (under supply disc).
Motor	Motor shaft has undue run-out. Motor pulley is oily and dusty.	Replace motor. Clean motor pulley.

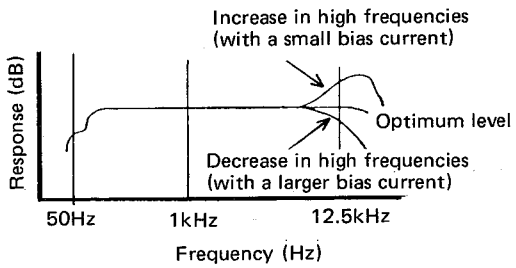
[IV] Electrical adjustments location

Main Amp. P.W. Board assembly (Top view)



[V] Electrical circuit adjustment procedure

In the steps marked by an asterisk (*), adjustment should be performed, however, only checking is sufficient with steps other than those.
Adjustment should be performed in the order of steps 1, 2, 3, ...
Perform this adjustment with the ANRS switch set to OFF.

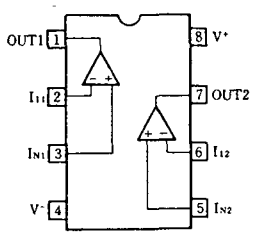
Step	Item	Adjustment	Adjusting point	Standard value	Remarks
1 *	Adjusting playback level	1. Playback the VTT-664 Reference tape (1kHz) with the tape select switch set to the SF/NORM position. 2. Adjust VR102 and VR202 until the LINE OUT becomes about −8dBs.	VR102 202	−8dBs	This adjustment becomes necessary when a change in playback level results (for example, due to head replacement).
2 *	Playback frequency response	Playback test tape VTT-675N (1kHz, 10kHz) for following adjustment. 1) Adjust VR101 and VR201 so that 10kHz signal and 1kHz signal gains become flat response.	VR101 201		
3 *	Adjusting VU meter deflection	1. Set the cassette deck to its recording mode. 2. Apply a 1kHz, approx. −10dBs signal to the LINE IN terminals. 3. Adjust the recording level controls until the signal is available at −8dBs at the LINE OUT terminals. 4. Adjust VR103 and VR203 until the VU meters deflect to 0.	VR103 203	0VU	Perform the adjustment when the parts are replaced.
4 *	Checking record/-playback frequency response	Record 1kHz, 50Hz and 12.5kHz signals at an input level of 0VU to −20dB. Playback the tape. Check to see that the 50Hz and 12.5kHz signal output deviations fall within the standard range, using the 1kHz signal output as a reference.	For SF/NORM tape: VR107 207 For SA/CrO2 tape: VR108 208 For Metal tape: VR109 209	Reference frequency; 1kHz 0 ± 3dB at 50Hz 0 ± 3dB at 12.5kHz	This checking should be performed for normal, chrome and metal tapes and for both right and left channels. 1. Bias current adjustment for a cassette deck should generally be performed referring to the record/playback frequency response. This is because the frequency response of a cassette deck depends more greatly upon the bias current than does that of an open reel deck. The current measuring method described below is an alternative one. 2. If the bias current is not properly adjusted, the record and playback characteristics become as shown below.
					
5	Adjusting recording level	1. Apply a 1kHz, approx. −10dB signal to the LINE IN terminals. Adjust the recording level controls until the signal is available at −8dBs at the LINE OUT terminals. 2. After checking to see if the VU indicator become to 0, record the signal applied to both left and right channels using normal tape. 3. Play back the recording part. Perform the recording signal adjustment with VR106 and VR206 so that the VU indicator become to 0.	VR106 206	0VU	The level difference between left and right channels for normal tape, chrome tape and metal tape should be less than 1dB (1VU). Perform the adjustment using a normal tape, level difference between recording and playback for SA/CrO2 and metal tapes should be less than 1.5dB, and that between left and right channels should also be less than 1dB.

Step	Item	Adjustment	Adjusting point	Standard value	Remarks
6	Checking record/-playback signal distortion	1. Record a 1kHz, −8dBs signal to LINE IN terminals and perform recording with the VU meter becomes to 0. 2. Play back the recorded part. Check the output with a distortion meter to see if the value conforms to the standard value.		SF/NORM tape; Less than 1.2% SA/CrO2 tape; Less than 3% Metal tape; Less than 2%	Be sure to perform this adjustment following bias current and recording level adjustments.
7	Checking signal to noise ratio in record-ing/play-back	1. Record a 1kHz, 0VU signal. Stop the input by disconnecting from the terminal to perform non-signal recording. 2. Play back the recorded part. Measure the 0VU recording output and the non-signal recording out-put for comparison using an electronic voltmeter. Check to see if the value conforms to the standard value.		SF/NORM, SA/CrO2 and Metal tapes; More than 42dB	Apply an output (−72dBs) to the MIC terminals with the recording level controls set to maximum so that the VU meter becomes to 0.
8	Checking erasing coefficient	1. Apply a 1kHz signal to the LINE IN terminals. Adjust the recording level controls until the VU meter becomes to 0. 2. Perform recording with the signal enhanced by 20dB. 3. Erase a part of the recording. 4. Measure the output difference between the erased part and non-erased part to compare with an electronic voltmeter.		More than 65dB	For the measuring, connect a band pass filter between the deck and the electronic voltmeter. Input (1kHz 0VU + 20dB) → Tape deck (recording, erasing) → Band pass filter → Electronic voltmeter

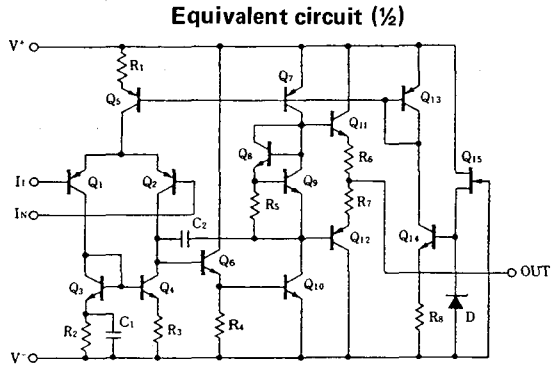
Integrant Circuit

UPC4557C

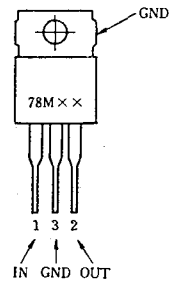
Top view



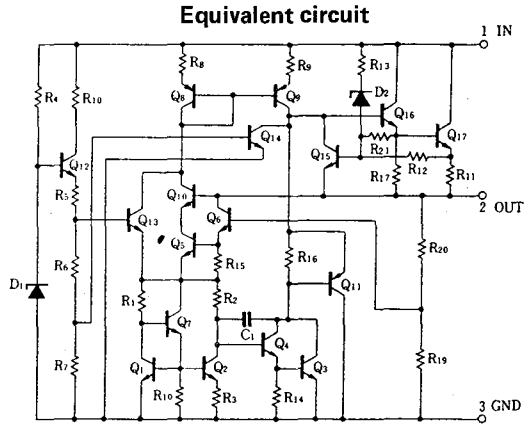
Equivalent circuit (½)



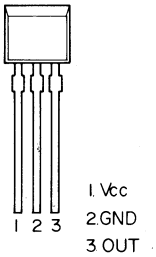
UPC78M15H



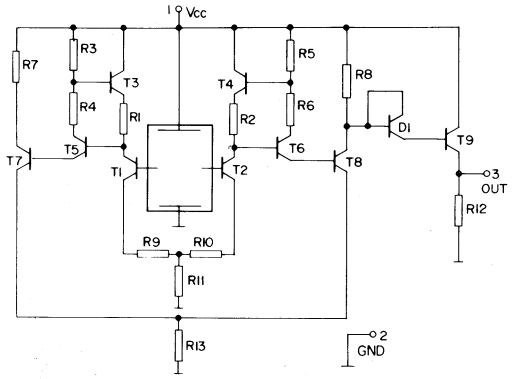
Equivalent circuit



DN6835

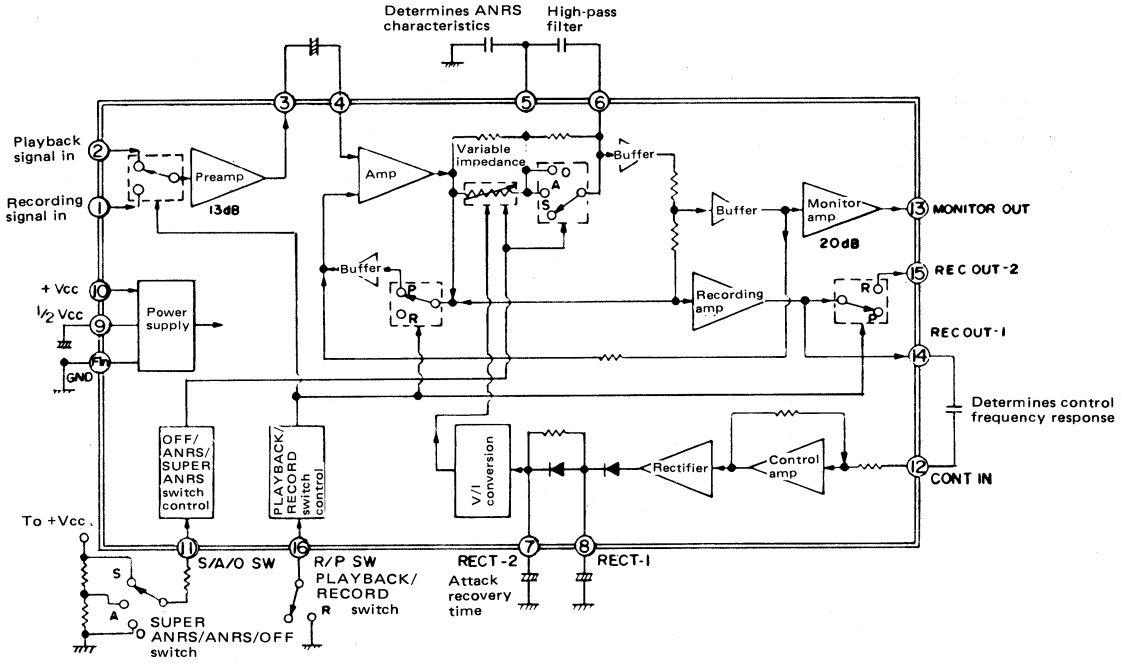


Equivalent circuit



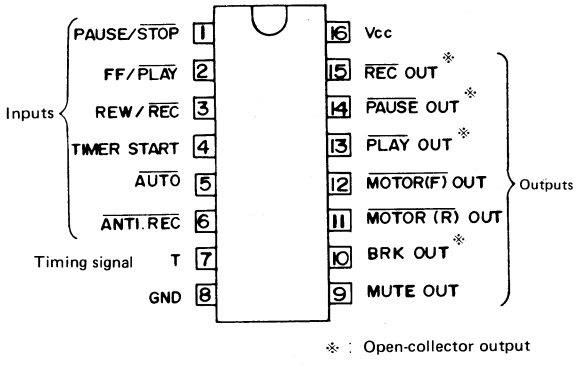
AN7362

Block diagram



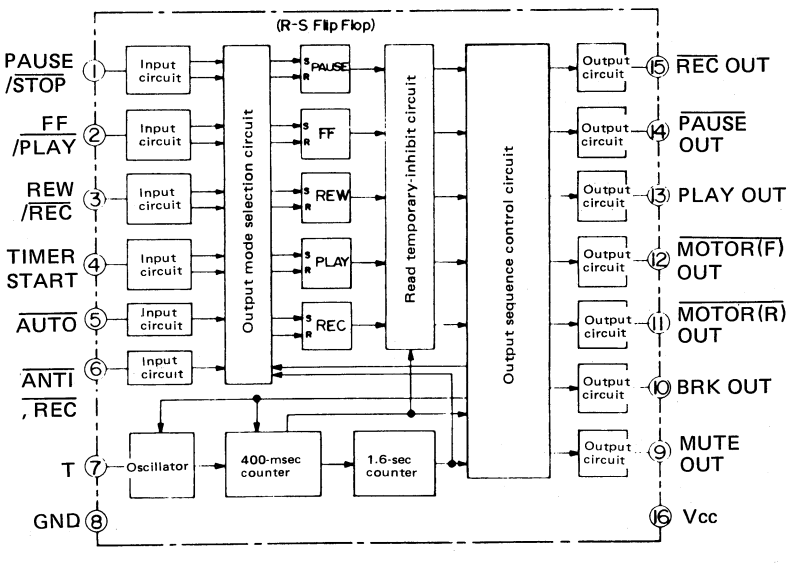
M54886P

Top view



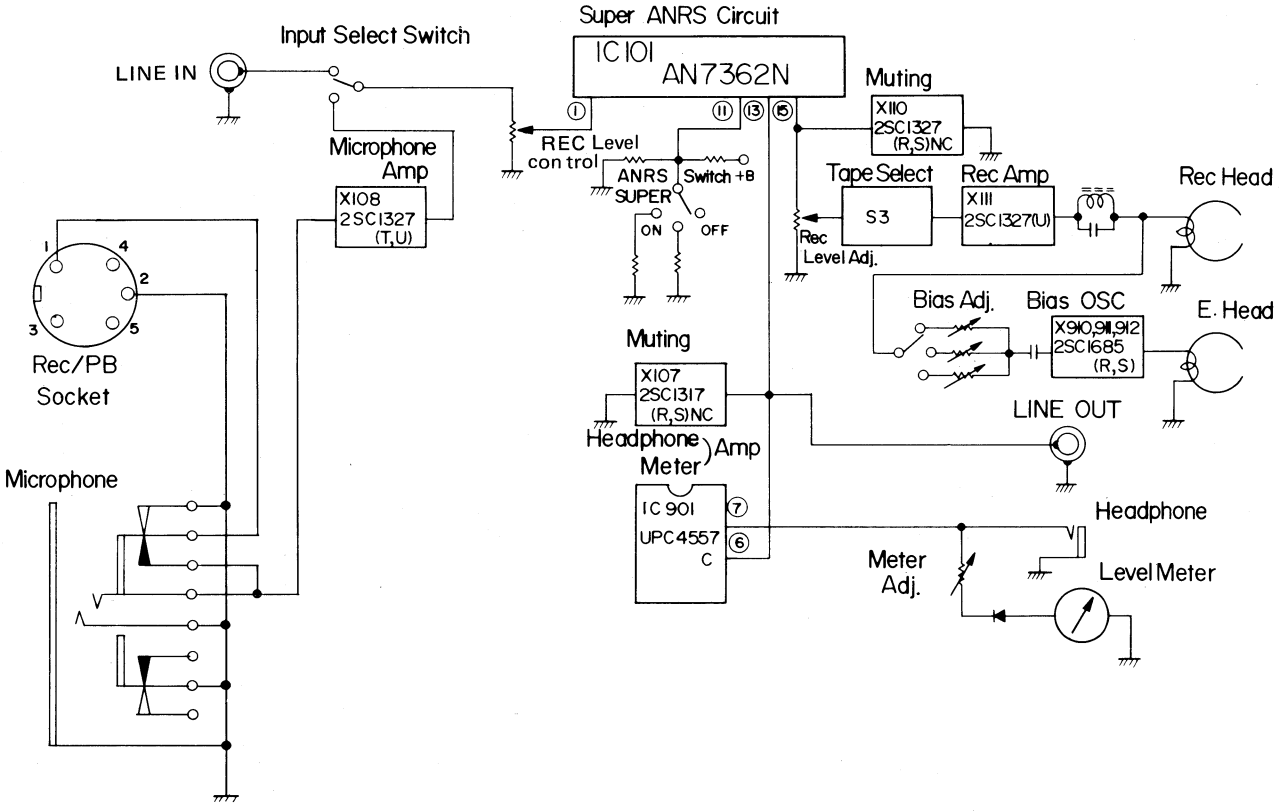
※ : Open-collector output

Block diagram

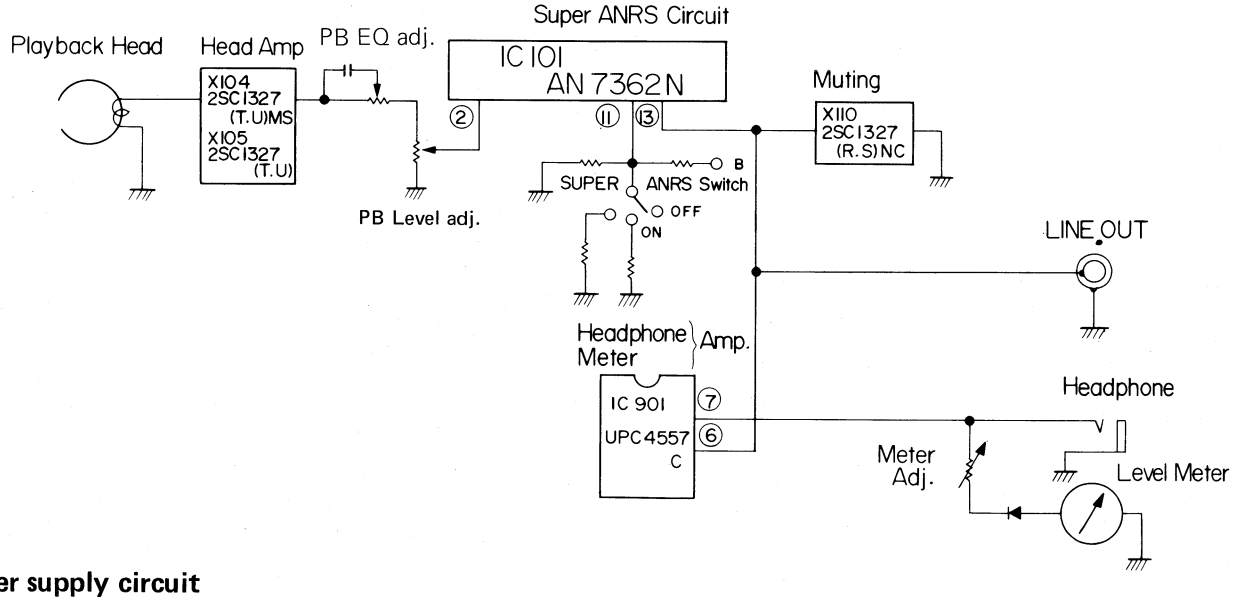


Block Diagram

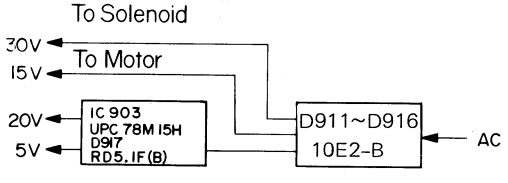
Recording system



Playback system

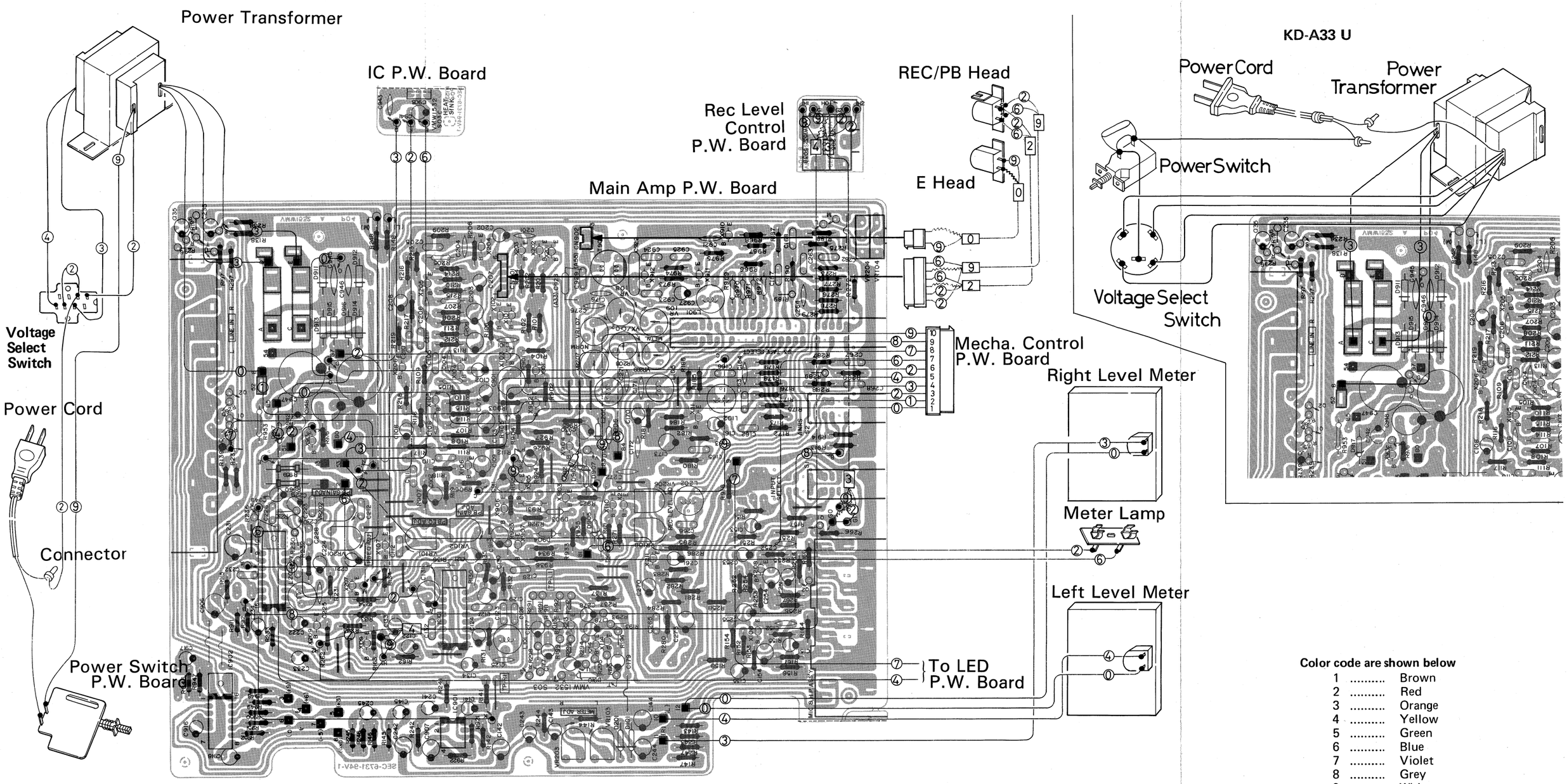


Power supply circuit



— Continued page 19 —

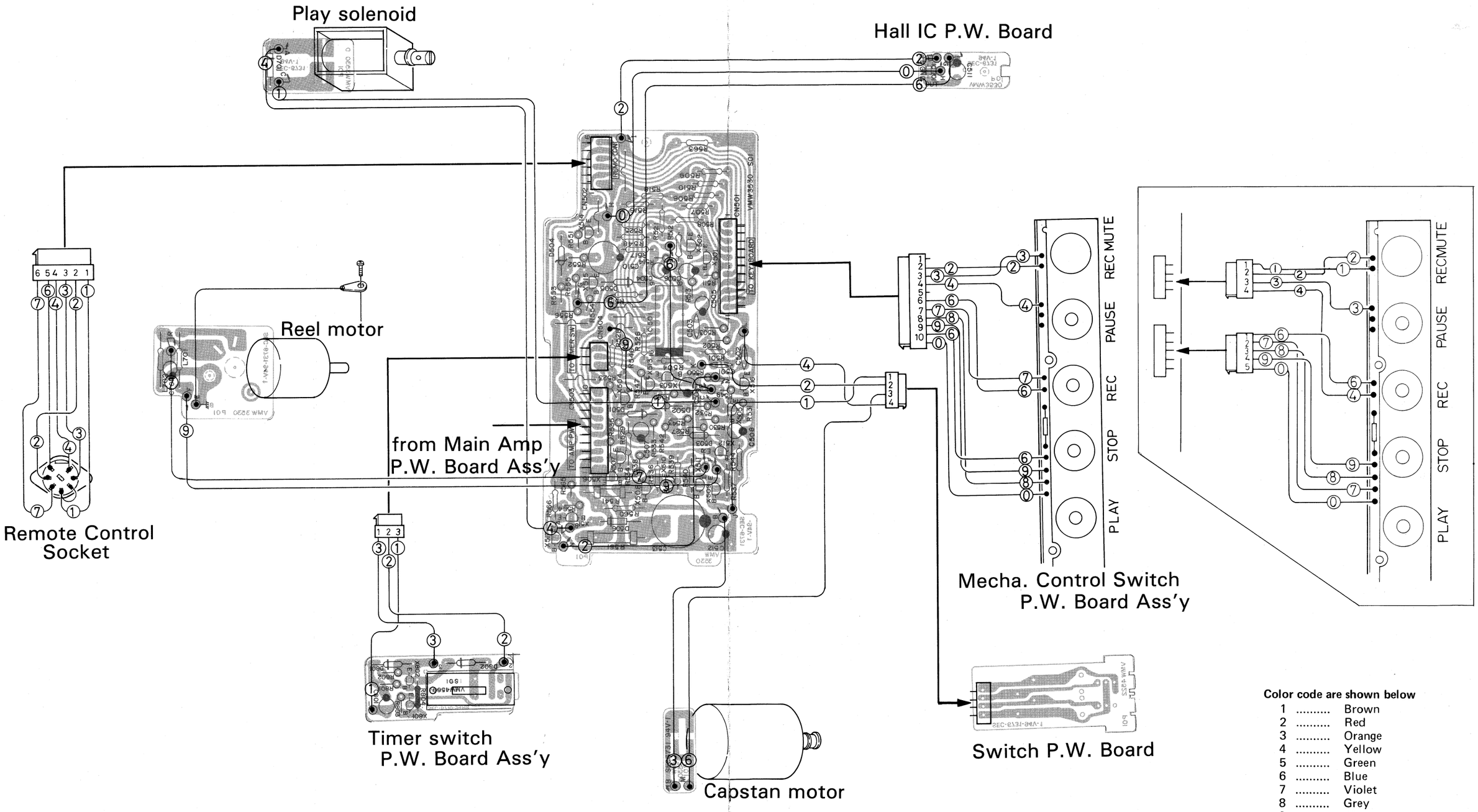
Wiring Connections (1)



Color code are shown below

1	.....	Brown
2	.....	Red
3	.....	Orange
4	.....	Yellow
5	.....	Green
6	.....	Blue
7	.....	Violet
8	.....	Grey
9	.....	White
0	.....	Black

Wiring Connections (2)



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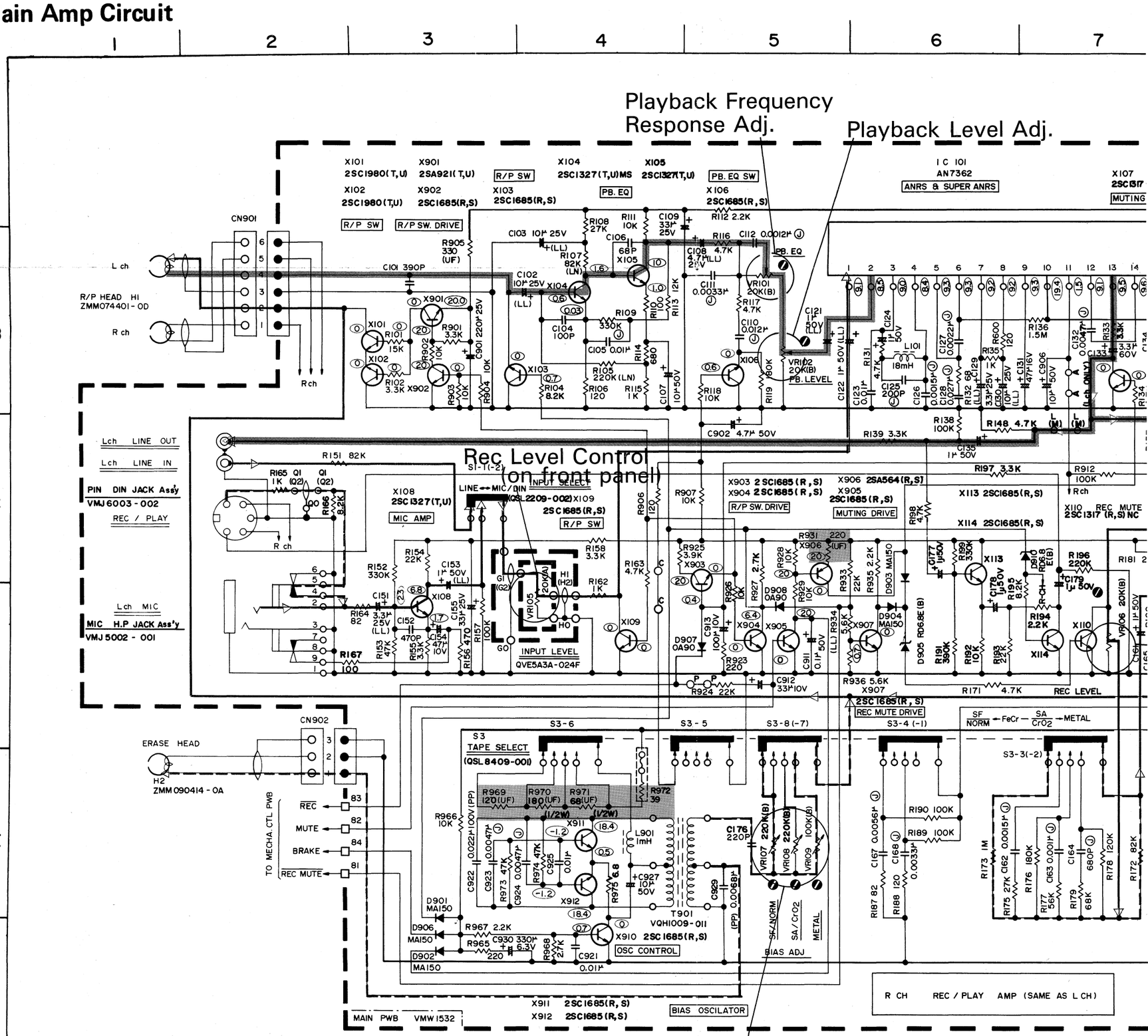
9	.....	White
0	.....	Black

Standard Schematic Diagram of KD-A33

Main Amp Circuit



NOTES:

All voltages are measured by E. Voltmeter, without input signal.
(Rec mode, tape select ... metal, ANRS ... OFF)

1. Unless otherwise specified, all resistors are 1/4W, ± 5% carbon resistors.
   And all capacitors are 50 V fixed ceramic capacitors or 50 V Mylar capacitors
2. UF — Unflamable carbon resistor
   MF — Metal film resistor
   OMF — Oxided metal film resistor
   Ta — Tantalum solid electrolytic capacitor
   LL — +20% low leak current electrolytic capacitor
   PP — Polypropylene capacitor
   PS — Polystyrene capacitor
   MM — Metallized mylar capacitor
   NP — Non-polarized electrolytic capacitor
   MP — Metalized polyester film capacitor
3. Blue line shows the signal at playback.
   Red line shows the signal at recording and +B circuits.
4. ▨ parts are safety assurance parts. When replacing those parts, make sure to use the specified one.

5 6 7 8 9 10

yback Frequency
sponse Adj.

Playback Level Adj.

PB. EQ SW

X106 2SC1685(R,S)

IC 101 AN7362 ANRS & SUPER ANRS

X107 2SC1317(R,S)NC MUTING

X913 2SC1685(R,S) POWER DELAY

IC 901 UPC4557C METER & PHONES AMP

VR103 2K(B) METER

Meter Reflection Adj.

M101 VU METER VGM0110-013T

PHONES

R/P SW. DRIVE

MUTING DRIVE

REC MUTE DRIVE

REC AMP

Recording Level Adj.

LED PWB VMW4563

TO MECHA. CTL PWB.

20V(REGU)

5V (REGU)

15V

30V

GND

R959 22 1W (OMF)

PL902 (METER) VGZ0001-003

X903 UPC78M15H POWER REGULATOR

D911 ~ D916 10E2-B

D917 RD5.1F(B)

VOLTAGE SELECT SW

POWER SW QSP1110-222

TO1 VTP66C3-022B MODEL KD-A33C/J

S3-5 S3-8(-7) S3-4(-1) S3-3(-2)

SF/NORM SA/CrO2 METAL

BIAS ADJ

BIAS OSCILATOR

R CH REC/PLAY AMP (SAME AS L CH)

Bias Adj.

TO1 VTP66U3-021B MODEL KD-A33U

TO1 VTP66C3-021B (KD-A33B/E) VTP66C3-023B (KD-A33A) MODEL KD-A33A/E WITH PLUG KD-A33B WITHOUT PLUG

capacitor
pacitor

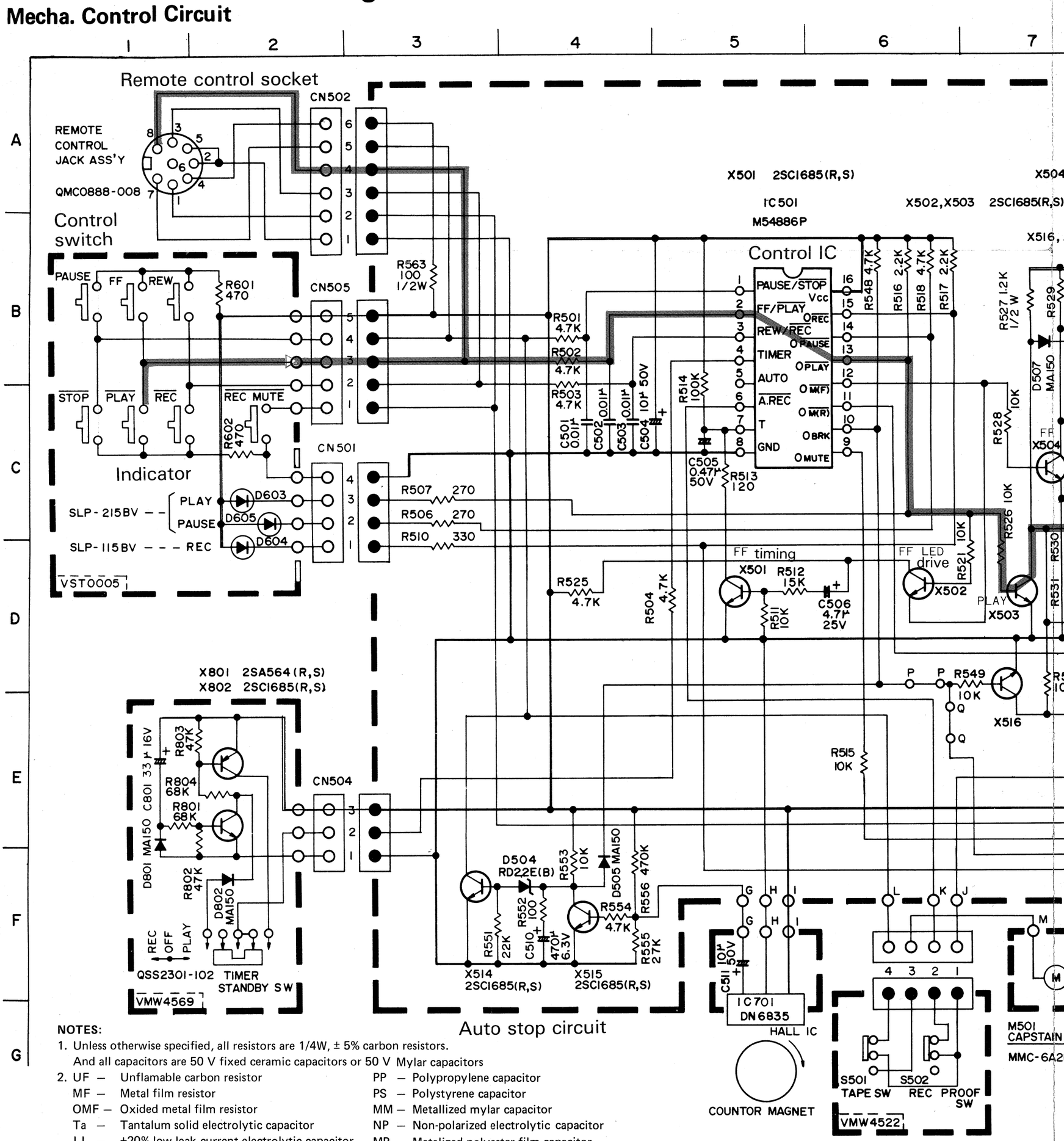
— Diode —

— Transistor —

E C B E C B

Standard Schematic Diagram of KD-A33

Mecha. Control Circuit



NOTES:

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   And all capacitors are 50 V fixed ceramic capacitors or 50 V Mylar capacitors
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   PS — Polystyrene capacitor
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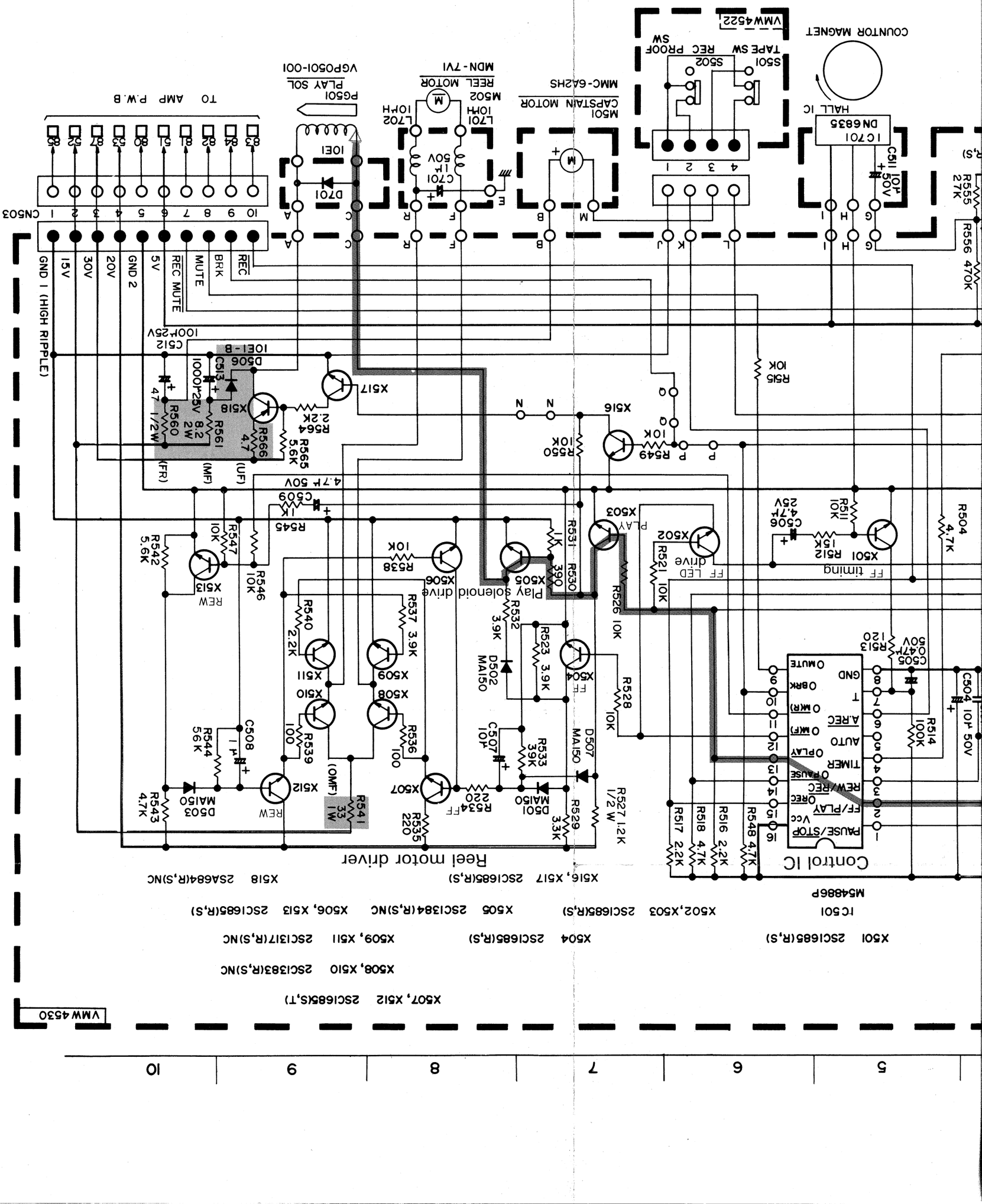
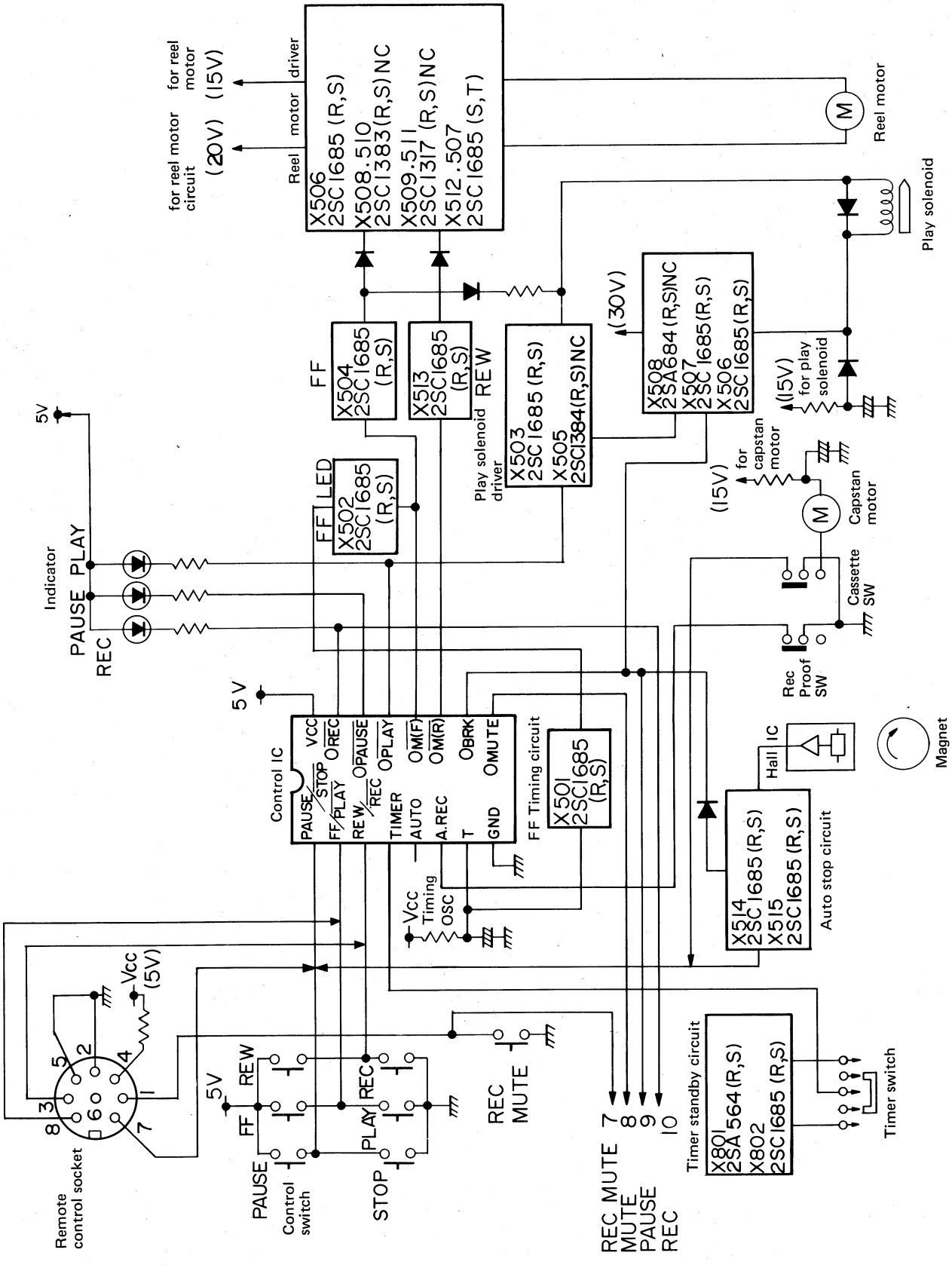
4. ▒▒ parts are safety assurance parts. When replacing those parts, make sure to use the specified one.


CN503
GND 1 (HIGH RIPPLE)
15V
30V
20V
GND 2
5V
REC MUTE
MUTE
BRK
REC
TO AMP P.W.B
PG501
PLAY SOL
VGP0501-001
D701
10EI
L702
10mH
L701
10mH
M502
REEL MOTOR
MDN-7V1
C701
1μ 50V
M501
CAPSTAIN MOTOR
MMC-6A2HS
S501
S502
TAPE SW
REC PROOF SW
VMW4522
COUNTOR MAGNET
HALL IC
IC701
DN6835
C511
10μ 50V
R555
27K
R556 470K
C512
100μ 25V
10EI-B
D506
C513
1000μ 25V
X518
R560
47
1/2W
R561
8.2
2W
R566
4.7
R565
5.6K
R564
2.2K
X517
R545
C509
4.7μ 50V
X516
R515
10K
R550
10K
R549
10K
X503
PLAY
X502
FF LED drive
R521
10K
R526 10K
R528
10K
R527 1.2K
1/2 W
R529
3.3K
R531
390
R530
X505
Play solenoid drive
R538
10K
X506
R532
3.9K
D502
MA150
R523
3.9K
X504
FF
D507
MA150
C507
10μ
R533
39K
D501
MA150
R534
220
X507
R535
220
REEL motor driver
R537
3.9K
X509
R536
100
X508
R540
2.2K
X511
R539
100
X510
(OMF)
R541
33
1W
C508
1μ
R544
56K
X512
REW
D503
MA150
R543
4.7K
R542
5.6K
R547
10K
X513
REW
R546
10K
X501
R512
15K
R511
10K
C506
4.7μ
25V
FF timing
R504
4.7K
C505
47μ
50V
R513
120
C504
10μ 50V
R514
100K
Control IC
PAUSE/STOP
FF/PLAY
REC
REW/FREC
PAUSE
TIMER
AUTO
A.REC
T
GND
MUTE
BRK
M548B6P
R517
2.2K
R518
4.7K
R516
2.2K
R548
4.7K
(FR)
(MF)
(UF)
X518 2SA684(R,S)NC
X516, X517 2SC1685(R,S)
X502, X503 2SC1685(R,S)
X501 2SC1685(R,S)
X504 2SC1685(R,S)
X505 2SC1384(R,S)NC
X506, X513 2SC1685(R,S)
X509, X511 2SC1317(R,S)NC
X508, X510 2SC1383(R,S)NC
X507, X512 2SC1685(K,T)
VMW4530
5
6
7
8
9
10

— Continued from page 14 —

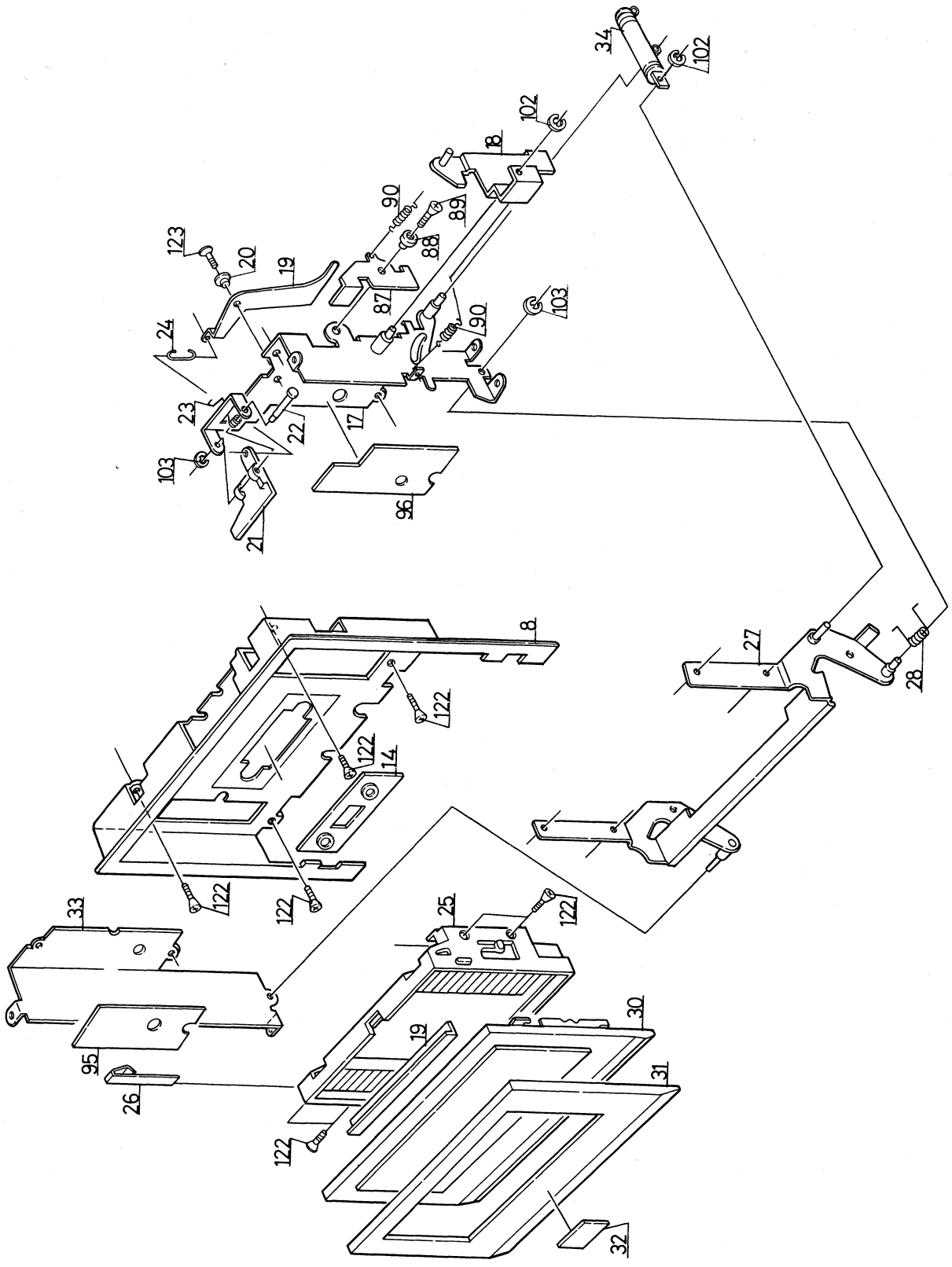
Block Diagram

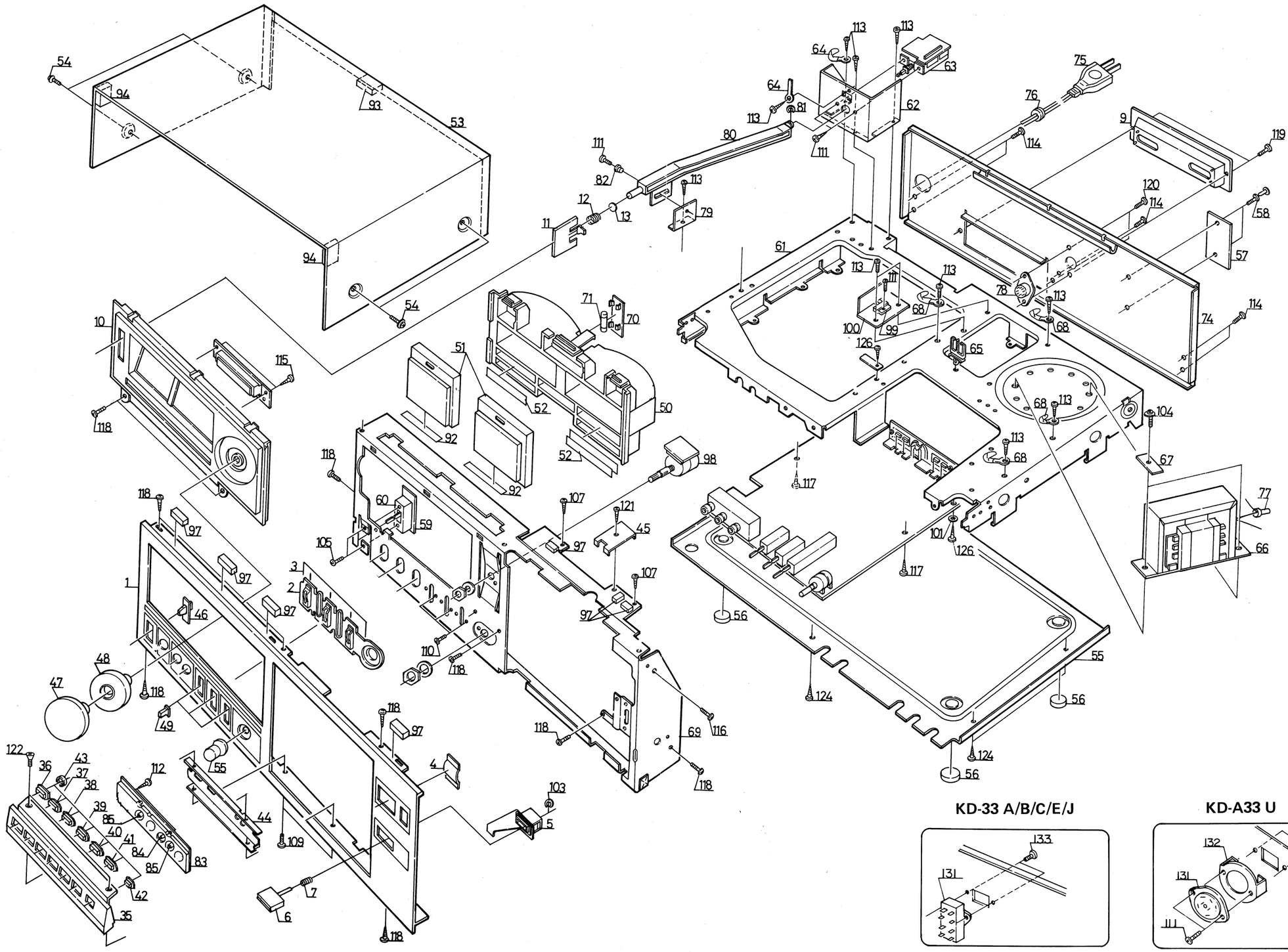
Mecha. Control Circuit



Enclosure Assembly and Electrical Parts

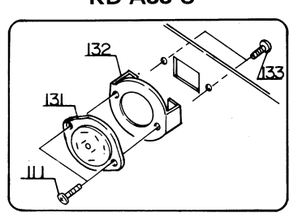
(Except P.W. Board Parts)



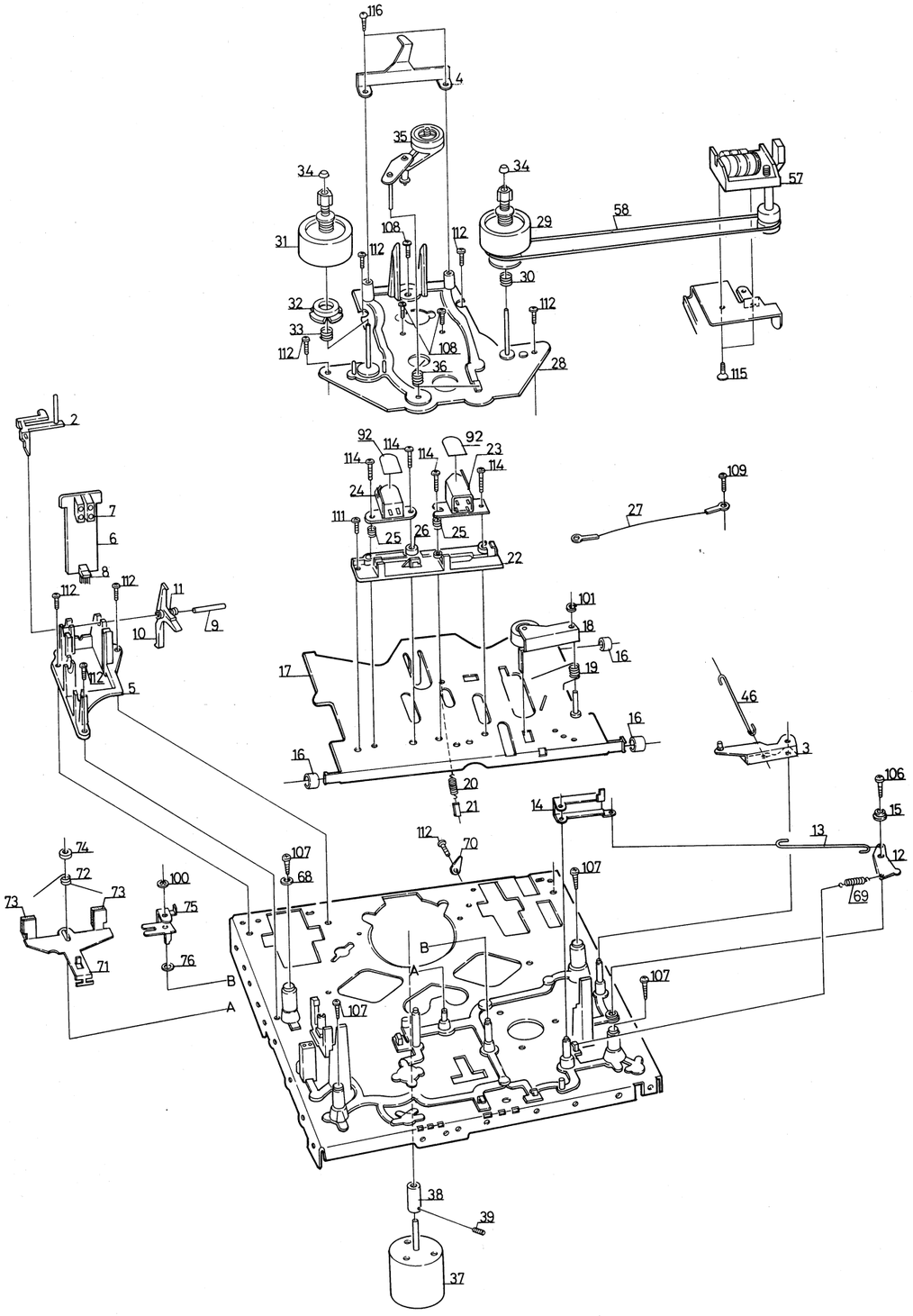


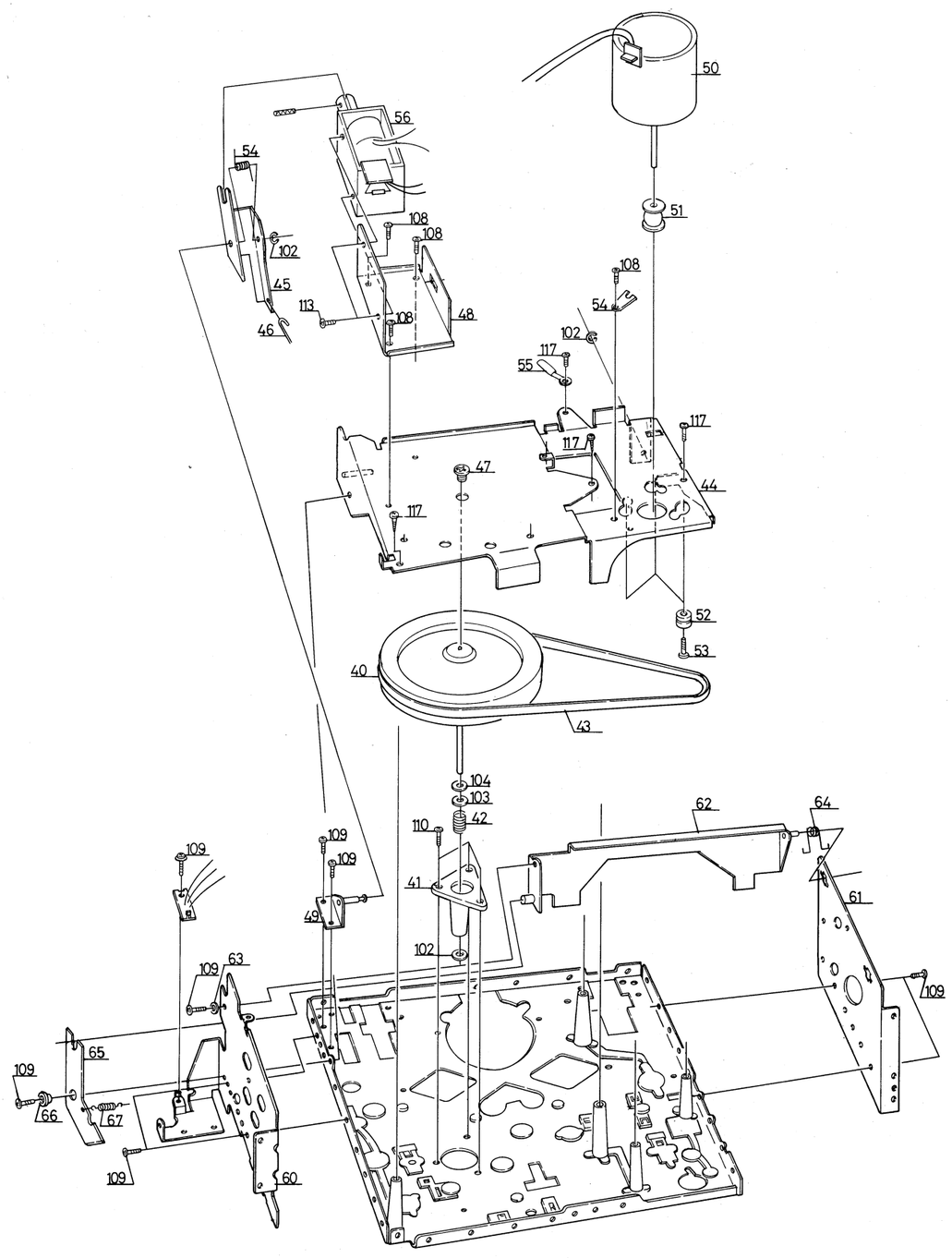
KD-33 A/B/C/E/J

KD-A33 U



Mechanical Component Parts





Enclosure Assembly and Electrical Parts List (Except P.W. Board Parts)

⚠ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
(1~7)	*ZCKDA33Y-CBF	Front Plate Sub Ass'y		1 set
1	*VJC1099-002	Front Plate	KD-A33A/C/J/U	1
	" -003	Front Plate	KD-A33B/E	1
2	VJD3212-001	Lever Escutcheon		1
3	VYTA451-001	Blind		1
4	VJK4118-001	Counter Lens		1
5	VJD4361-001	Escutcheon	for Eject Knob	1
6	VXP4061-00B	Push Knob Ass'y	for Eject	1
7	VKW3001-028	Compression Spring		1
8	VJD2151-001	Mecha Cover		
9	VJD3213-002	Jack Escutcheon		1
10	*VJD2146-002	Meter Escutcheon		1
11	VXP3051-002	Push Knob		1
12	VKW3001-045	Compression Spring		1
13	VYSA2R6-004	Spacer	for Push Knob	1
14	VJD4385-001	Disk Plate		1
17	VKL3226-00B	Bracket (R) Ass'y		1
18	VKL4756-00B	Eject Lever Ass'y		1
19	VKL4669-002	Eject Arm		1
20	VKH4253-001	Flange Collar		1
21	VKS4200-002	Lock Lever		1
22	VKH4261-001	Shaft		1
23	VKW4196-001	Torsion Spring		1
24	VKW4195-001	Wire		1
25	VJT2038-002	Cassette Holder		1
26	VKY4173-002	Cassette Spring		1
27	VKL3228-00A	Holder Arm Ass'y		1
28	VKW4194-004	Holder Spring		1
(30~32)	ZCKDA33Y-CCA	Cassette Lid Sub Ass'y		1 set
30	*VJT3049-001	Cassette Lid		1
31	VJT3050-001	Lid Plate		1
32	TJL344518-02	"SA" Mark	for Lid Plate	1
33	VKL4667-001	Bracket (L)		1
34	VKS4002-00A	Air Dump Ass'y		1
35	VJD3218-001	Button Case		1
36	VXP3046-001	Push Button	for Rew	1
37	" -002	"	for FF	1
38	" -003	"	for Play	1
39	" -004	"	for Stop	1
40	" -005	"	for Rec	1
41	" -006	"	for Pause	1
42	VXP4056-001	"	for Rec Mute	1
43	VKS4001-001	Button Spacer		7
44	VKL4695-002	Bracket		1
45	VKL4713-001	Bracket		1
46	VXS4031-001	Slide Knob	for Timer	1
47	VXL4101-00A	Knob Ass'y	for Input Level Control (Left)	1
48	VXL4102-00A	Knob Ass'y	for Input Level Control (Right)	1
49	VXQ4030-001	Lever Knob		3
50	VKS2107-001	Lamp Hood		1
51	VGM0110-013T	Level Meter		2
52	VYSA1R8-045	Spacer		3
53	VKL1138-002	Top Cover		1
54	VKZ3001-002	Special Screw		4
55	VKL1167-001	Bottom Cover		1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
56	VJF4003-001	Foot		4
57	VYN2060-002GA	Name Plate	KD-A33B	1
	" -003GA	"	KD-A33A	1
	" -004GA	"	KD-A33C	1
	" -005GA	"	KD-A33E	1
	" -006GA	"	KD-A33J	1
	" -007GA	"	KD-A33U	1
58	E48729-002	Plastic Rivet	for Name Plate	2
59	VMW4569-001	P.W. Board	for Timer Switch	1
60	QSS2301-102	Slide Switch	for Timer Switch	1
61	VKL1164-00A	Amp. Chassis Ass'y		1
62	VKL3224-001	Power Bracket	for Power Switch	1
63	⚠ QSP2111-011	Push Switch	KD-A33 A/E	1
	⚠ " -011BS	"	KD-A33B	1
	⚠ QSP1110-222	"	KD-A33 C/J	1
	⚠ " 221	"	KD-A33U	1
64	⚠ VKZ4001-011	Wire Holder		2
65	QHW3059-001	Wire Clamp		1
66	⚠ VTP66C3-023B	Power Transformer	KD-A33 A/E	1
	⚠ VTP66C3-021BBS	"	KD-A33B	1
	⚠ VTP66C3-022B	"	KD-A33 C/J	1
	⚠ VTP66U3-021B	"	KD-A33U	1
67	F4932-002	Spacial Washer	for Power Transformer	2
68	VKZ4001-011	Wire Holder		4
69	VKL1166-001	Front Bracket		1
70	QMG1121-003	Lamp Holder		1
71	VGZ0001-003	Lamp Ass'y		1 set
	QLP4101-008	Lamp		1
	VJZ4006-002	Lamp Shade		1
74	VKL2122-001	Rear Panel	KD-A33 C/J	1
	" -002	"	KD-A33 A/B/E/U	1
75	⚠ QMP2560-200	Power Cord with Plug	KD-A33A	1
	⚠ QMP9017-008BS	Power Cord	KD-A33B	1
	⚠ QMP1200-200	Power Cord with Plug	KD-A33 C/J	1
	⚠ QMP3900-200	"	KD-A33E	1
	⚠ QMP7600-200	"	KD-A33U	1
76	⚠ QHS3876-162	Strain Relief Bushing	KD-A33 A/C/E/J/U	1
	⚠ QHS3876-162BS	"	KD-A33B	1
77	⚠ TAW000504-01	Connector		2
78	QMC0888-008	DIN Socket Ass'y	for Remote Control	1
79	VKL4666-001	Guide Bracket		1
80	VKS3116-001	Remote Bar	for Power Switch	1
81	VYTS404-001	Lock Plate		1
82	VKH3001-032	Flange Collar		1
83	*VST0005-002	Switch Unit Ass'y		1
84	SLP-114BV	LED	D604 (Red)	1
85	SLP-214BV	"	D603, 605 (Green)	2
86	VYSA1R8-044	Spacer	for Meter Escutcheon	2
87	VKL4752-001	Lever		1
88	VKH4253-001	Collar		1
89	VKZ4128-001	Special Screw		1
90	VKW3002-045	Tension Spring	Eject Lever x 1 Lever x 1	2
91	VKL4754-001	Bracket		1
92	VKZ4010-001	Sheet	Level Meter	2
93	VYSH108-008	Spacer	Top cover	1
94	VYSH104-011	Spacer	Top cover	1
95	VKZ4011-001	Sheet	Bracket (Left)	1
96	VKZ4012-001	Sheet	Bracket (Right)	1
97	VYSH106-028	Spacer	Front Bracket x 3 Front Plate x 4	7

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
98	QVE5A3A-024F	Variable Resistor	VR105, 205 Input Level Control	1
99	⚠UPC78M15H	IC	Power Supply IC	1
100	VKL4771-001	Heat Sink	"	1
101	WBS3000	Washer	for Earth	1
102	REE2500	E ring	Air dumper Ass'y x 1 Eject Knob Ass'y x 1 Eject Lever Ass'y x 1 Lock Lever x 1 Holder Arm Ass'y x 1	5
104	DPSP4012ZS	Screw	Power Transformer	2
105	LPSP2604Z	"	Timer Switch	2
106	LPSP2605Z	"	Front Plate ~ Bracket	4
107	LDSP2606C	"	Mecha. ~ Front Bracket	2
108	LPSP2606V	"	Control P.W. Board	1
109	LPSP2606Z	"	Bracket	2
110	LPSP3006VS	"	Lever Switch	3
111	LPSP3006ZS	"	Power Switch x 2 Lock Plate x 1 Voltage Select SW x 2 (KD-A33U)	3
112	SBSB2610Z	Tapping Screw	P.W. Board	2
113	SBSB3006Z	"	Switch Bracket x 3 Wire Holder x 4 Guide Bracket ~ Amp. Chassis x 1 Heat Sink x 2	10
114	SDSB3006R	Screw	Rear Panel	5
115	SDSB3008V	"	LED P.W. Board	2
116	SDSB3006C	"	Mech. ~ Amp. Chassis x 4 Counter Bracket ~ Front Bracket x 1	5
117	SBSB3006V	"	Main P.W. Board	3
118	SDSB3006Z	"	Meter Escutcheon ~ Front Bracket x 2 Front Plate ~ Front Bracket x 5 Front Bracket x 4	11
119	SDSB3008R	"	Jack Escutcheon	2
120	SDSP2605R	"	Remote Control Socket	2
121	SSSP2605C	"	Bracket (VKL4713-001)	1
122	SSSP2605R	"	Mecha. Cover x 2 Cassette Holder x 4	6
123	SSSP2604Z	"	Eject Arm	1
124	SDSB3008Z	"	Bottom Cover	5
125	SSSP2604R	"	Bracket (VKL4695-001)	2
126	SBSB3008Z	"	Chassis Earth (Main P.W.B.)	1
130	REE2000	E ring	Holder Arm Ass'y	1
131	⚠ QSS2325-011	Voltage Select Switch	KD-A33 A/C/E/J	1
	⚠ QSS2325-011BS	"	KD-A33B	1
	⚠ QSR0084-001	"	KD-A33U	1
132	VKL4275-001	Bracket	KD-A33U, Voltage Select SW	1
133	SDSP3006RS	Screw	for Voltage Select SW	2

Mechanical Component Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1	*VKL1118-00F	Chassis Base Ass'y		1
2	VKS4166-001	Cassette Switch Lever		1
3	*VKL4702-00A	Play Arm Ass'y		1
4	VKY4174-001	Cassette Spring		1
5	VKS3109-001	Switch Holder (L)		1
6	VMW4522-001	P.W. Board (L)		1
7	QSP0029-001	Slide Switch		2
8	QMV5004-004	Connector		1
9	VKH4264-001	Shaft		1
10	VKS4136-002	Switch Lever		1
11	VKW4138-001	Pressure Lever Spring		1
12	VKL4399-002	Eject Safety Lever		1
13	*VKW4201-001	Connecting Wire		1
14	*VKL4704-001	Eject Arm		1
15	VKH3001-027	Collar		1
16	VKZ3003-001	Rubber Tube		3
17	*VKL4705-00A	Slide Base Ass'y		1
18	VKP4108-00A	Pinch Roller Arm Ass'y		1
19	VKW4202-001	Pinch Roller Spring		1
20	VKW3002-044	Tension Spring	for Slide Base	1
21	TJN265559-02	Silencer		1
22	VKS2102-001	Head Mount Base		1
23	ZMM074401-0D	R/P Head Ass'y		1
24	VGH0212-102	E Head Ass'y		1
25	VKW3001-020	Compression Spring	for R/P, and E Heads	2
26	VKH4215-001	Head Collar		1
27	VMZ0008-00A	Wire Ass'y		1
28	VKL3155-00A	Reel Disk Bracket Ass'y		1
29	*VKR4133-00B	Take-up Reel Ass'y		1
30	VKW3001-046	Compression Spring		1
31	VKR4118-00A	Supply Reel Ass'y		1
32	VKS4130-001	Back Tension Base		1
33	VKW3001-026	Compression Spring		1
34	VKS4131-001	Reel Stopper		2
35	VKS4151-00B	Idler Ass'y Unit		1
36	VKW4134-001	Idler Spring		1
37	MDN-7V1	Reel Motor		1
38	VKR4121-001	Motor Pulley		1
39	YRS2603B	Screw	for Motor Pulley	1
40	VKF3107-00B	Flywheel Ass'y		1
41	VKF3103-00B	Capstan Metal		1
42	T30301-137	Spring		1
43	VKB3001-007	Capstan Belt		1
44	VKL3231-002	Hold Base		1
45	*VKL4706-001	Play Solenoid Lever		1
46	*VKW4200-001	Connecting Wire		1
47	TEP357456-01	Thrust Screw		1
48	*VKL4709-001	Play Solenoid Bracket		1
49	*VKL4707-00A	Holder Bracket Ass'y		1
50	MMC-6A2HS	D.C. Motor	for Capstan	1
51	VKS4139-002	Motor Pulley		1
52	TER357465-03	Cusion Rubber		3
53	VKZ4109-003	Motor Screw		3
54	TFB345469-01	Rubber Stopper		1
55	VKZ4001-011	Wire Holder		1
56	*VGP0501-001	D.C. Solenoid Ass'y		1
57	*VKC5134-002S	Counter Ass'y	VKC5134-0035=Counter Knob	1
58	VKB3000-012	Counter Belt		1

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
59	VKZ4001-010	Wire Holder		1
60	VKL3230-001	Side Bracket (R)		1
61	VKL4682-001	Side Bracket (L)		1
62	VKL4403-00B	Shift Arm Ass'y		1
63	VKH3001-033	Flange Coller		1
64	VKW4156-001	Shift Arm Spring		1
65	VKL4701-001	Shift Lever		1
66	VKH3001-027	Flange Coller		1
67	*VKW3002-044	Tension Spring		1
68	WNB2600N	Washer		1
69	VKW3002-045	Spring		1
70	51739-2	Lug		1
92	THC037417-02	Head Plate	R/P Head, E Head	2
100	REE2500	E ring		1
101	REE2000	E ring	for Pinch Roller Arm Ass'y	1
102	Q03093-522	Washer	for Flywheel	1
103	" -621	"	"	1
104	" -827	"	"	1
105	DPSP2605Z	Screw	for Control P.W.B.	2
106	GPSA2608Z	Tapping Screw	for Eject Safety Lever	1
107	GPSA2612Z	"	for Slide Base Ass'y	4
108	LPSP2604Z	Screw	for Reel Motor x 3 Play Solenoid Bracket x 3 Rubber Stopper x 1 Holder Bracket Ass'y x 2	9
109	LPSP2605Z	"	for Hold Base x 2 Slide Bracket x 4 Shift Arm Ass'y x 1 Shift Lever x 1 Lug x 1	9
110	LPSP2606Z	"	for Capstan Metal	3
111	SPSP2006Z	"	for Head Mount Base	1
112	SPSP2605Z	"	for Ass'y Unit x 4 Switch Holder x 3 Wire Holder x 1	8
113	SPSP3303ZS	"	for Solenoid	2
114	SPSX2010N	"	for R/P and E Head	4
115	SSSP3006ZS	"	for Counter Ass'y	2
116	SBSB2006Z	Tapping Screw	for Cassette Spring	2
117	SBSB2610Z	"	for Hold Base	4

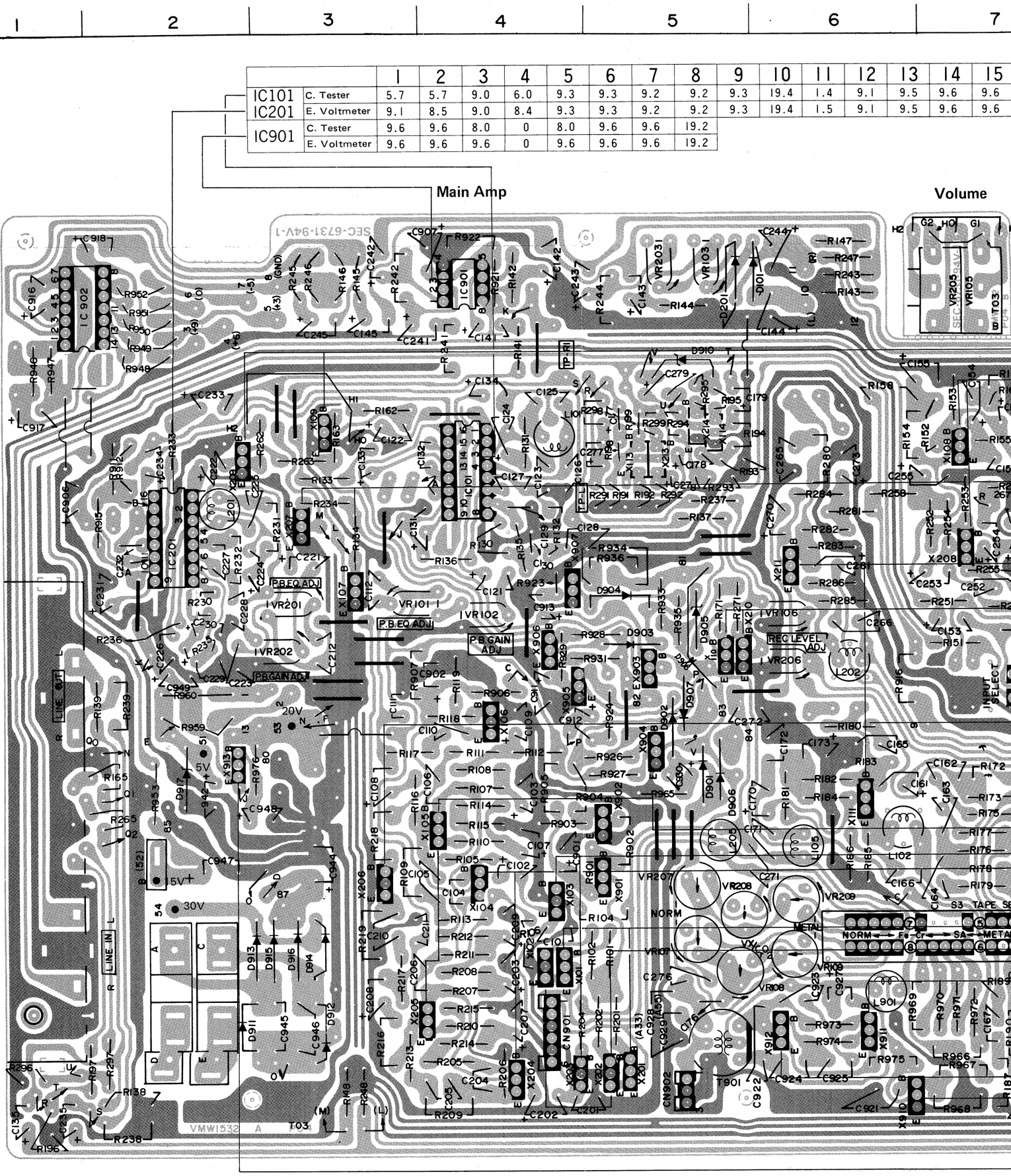
Main P.W. Board Parts List

⚠ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	*VMW1532-004	P.W. Board	No supply as parts assembly	1
R101,201	QRD141J-153SY	C. Resistor	15kΩ ¼W	2
R102,202,133,233 139,239,143,143 155,255,158,258 197,297	" -332SY	"	3.3kΩ "	14
R116,216,117,217 131,231,134,234 148,248,163,263 171,271,198,298	" -472SY	"	4.7kΩ "	16
R105,205	" -224SL	C. Resistor (Low Noise)	220kΩ "	2
R106,206,188,288 906	" -121SY	C. Resistor	120Ω "	5
R107,207,151,251 172,272	" -823SL	C. Resistor (Low Noise)	82kΩ "	6
R108,208,175,275	" -273SY	C. Resistor	27kΩ "	4
R109,209,152,252 199,299	" -334SY	"	330kΩ "	6
R110,210,167,267	" -101SY	"	330kΩ "	4
R111,211,228,218 137,237,902~904 907,926,928,929 966	" -103SY	"	10kΩ "	14
R112,212,181,281 935,967,194,294	" 222SY	"	2.2kΩ "	8
R113,213	QRD147J-123S	"	12kΩ "	2
R114,214,144,244	QRD141J-681SY	"	680Ω "	4
R115,215,162,262	" -102SY	"	1kΩ "	4
R119,219,176,276	" -184SY	"	180kΩ "	4
R130,230	QRD143J-121S	"	120Ω "	2
R132,232	QRD141J-680SY	"	68Ω "	2
R135	QRD147J-102S	"	1kΩ "	1
R235,165,265	QRD143J-102S	"	1kΩ "	3
R136	QRD147J-155S	"	1.5MΩ "	1
R236	QRD143J-155S	"	1.5MΩ "	1
R138,238,157,257 183,283,190,290 912	QRD141J-104SY	"	160kΩ "	9
R141,241,153,253	QRD141J-473SY	"	47kΩ "	4
R142,242	QRD147J-154S	"	150kΩ "	2
R147,247	" -151S	"	150Ω "	2
R104,204,166,266	QRD141J-822SY	"	8.2kΩ "	4
R154,254,180,280 184,284,924,933	" -223SY	"	22kΩ "	8
R156,256	QRD147J-471S	"	470Ω "	2
R164,264,187,287	" -820SY	"	82Ω "	4
R173,273	" -105S	"	1MΩ ¼W	2
R177,277	QRD141J-563SY	"	56kΩ "	2
R178,278	" -124SY	"	120kΩ "	2
R179,279,921,922	" -683SY	"	68kΩ "	4
R193,293	" -223SY	"	22kΩ "	2
R182,282	QRD147-125S	"	1.2MΩ "	2
R185,285	QRD141J-152SY	"	1.5kΩ "	2
R186,286	QRD147J-221S	"	220Ω "	2
R189,289	QRD143J-104S	"	100kΩ "	2
R191,291	" -394S	"	390kΩ "	2
R196,296	" -224S	"	220kΩ "	2
R901	QRD141J-332SY	"	3.3kΩ "	1
R905	⚠ QRD149J-331S	Unflammable Resistor	330Ω "	1

Main P.W. Board Parts

		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
IC101 IC201	C. Tester	5.7	5.7	9.0	6.0	9.3	9.3	9.2	9.2	9.3	19.4	1.4	9.1	9.5	9.6	9.6
	E. Voltmeter	9.1	8.5	9.0	8.4	9.3	9.3	9.2	9.2	9.3	19.4	1.5	9.1	9.5	9.6	9.6
IC901	C. Tester	9.6	9.6	8.0	0	8.0	9.6	9.6	19.2							
	E. Voltmeter	9.6	9.6	9.6	0	9.6	9.6	9.6	19.2							

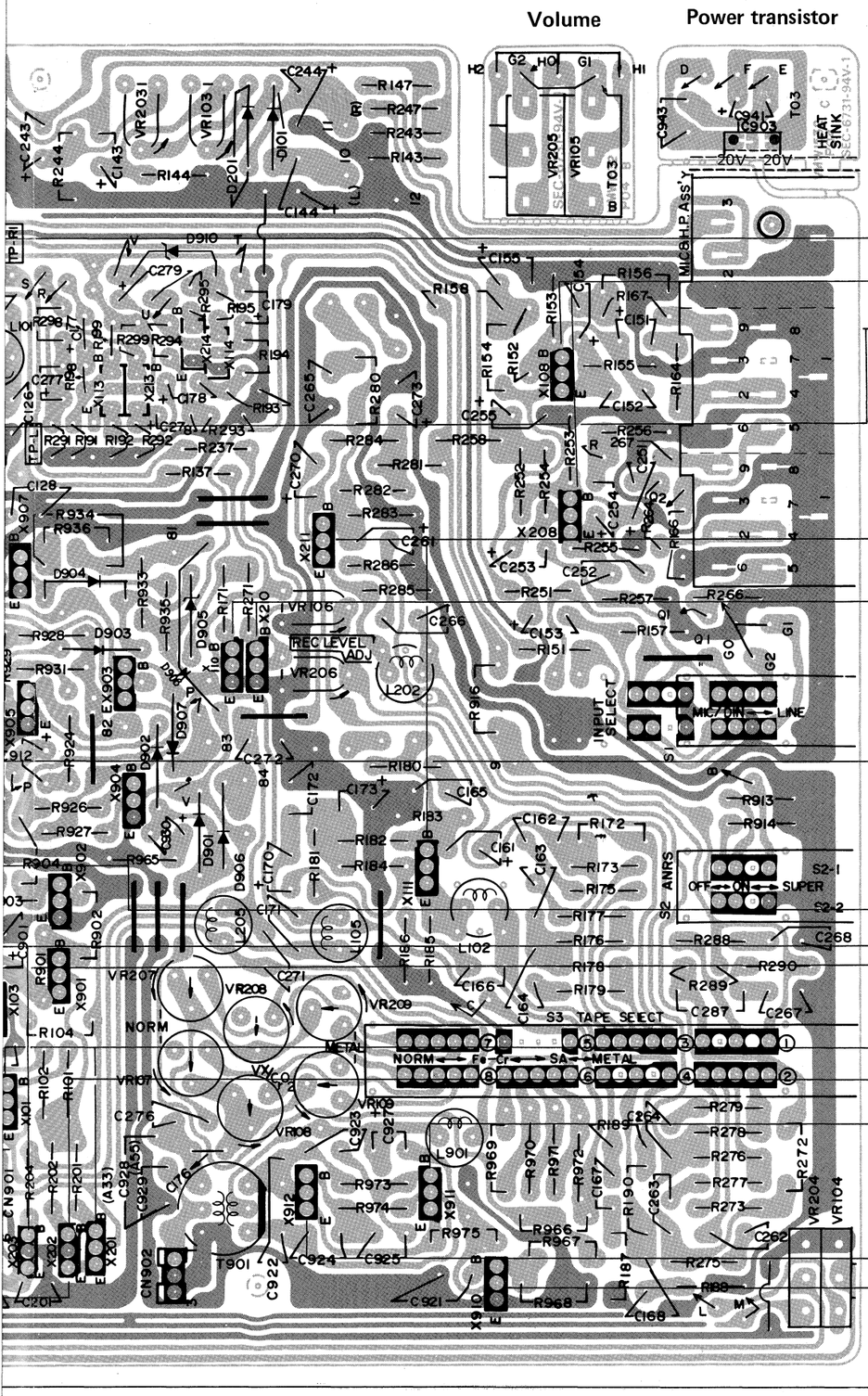


	X901			X902			X903			X904			X905			X906		
	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B	E	C	B
C. Tester	20.0	0	19.8	0	19.8	0	0.03	19.9	0.45	0	6.4	0.03	0	20		20	0	
E. Voltmeter	20.0	0	19.8	0	19.8	0	0.03	19.9	0.45	0	6.4	0.03	0	20		20	0	

5	6	7	8	9	10

5	6	7	8	9	10	11	12	13	14	15	16
.3	9.3	9.2	9.2	9.3	19.4	1.4	9.1	9.5	9.6	9.6	0.4
.3	9.3	9.2	9.2	9.3	19.4	1.5	9.1	9.5	9.6	9.6	0.5
.0	9.6	9.6	19.2								
.6	9.6	9.6	19.2								

C. Tester = Circuit Tester
E. Voltmeter = Electrinic Voltmeter

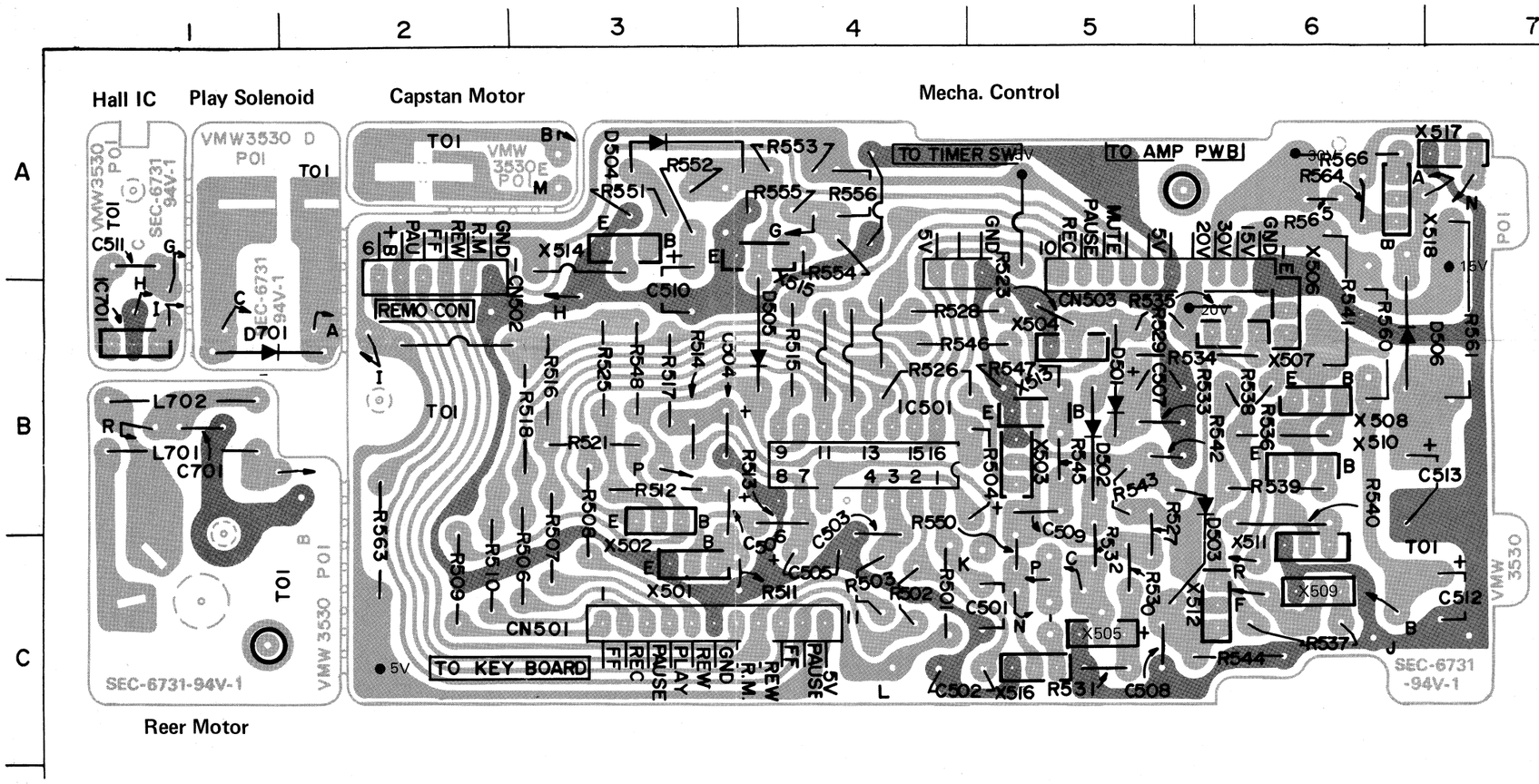


	C. Tester			E. Voltmeter		
	E	C	B	E	C	B
X109 209	0	0	0	0	0	0
X108 208	1.7	6.8	1.6	1.7	6.8	2.3
X107 207	0	0	0	0	0	0
X111 211	1.7	6.4	0.2	1.7	6.4	2.3
X110 210	0	0	0	0	0	0
X106 206	0	0	0.6	0	0	0.6
X105 205	1.0	12	1.6	1.0	12	16.3
X103 203	0	0	0.7	0	0	0.7
X104 204	0.03	1.63	0.3	0.03	1.63	0.6
X101 201	0	0	0	0	0	0
X102 202	0	0	0	0	0	0

	C. Tester			E. Voltmeter		
	E	C	B	E	C	B
X911	0.5	18.4	−1.2	0.5	18.4	−1.2
X912	0.5	18.4	−1.2	0.5	18.4	−1.2
X910	0	0	0.7	0	0	0.7
X913	19.2	20.0	19.8	19.2	20.0	19.8

903		X904			X905			X906			X907		
C	B	E	C	B	E	C	B	E	C	B	E	C	B
19.9	0.45	0	6.4	0.03	0	20		20	0		0	0	0.7
19.9	0.45	0	6.4	0.03	0	20		20	0		0	0	0.7

Mecha. Control P.W. Board Parts



IC501 (M54886P) pin assignment

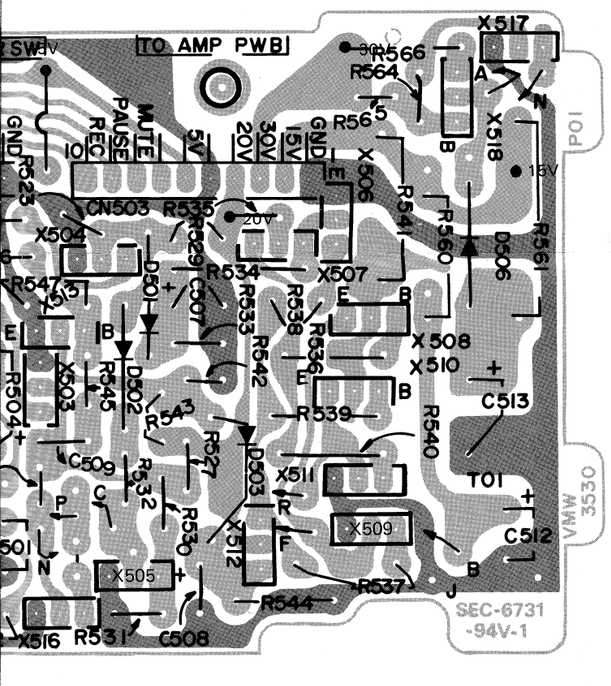
Pin No.	Label		Description
1	PAUSE/$\overline{\text{STOP}}$	Operation inputs	Input terminal which selects PAUSE mode at "H" level and $\overline{\text{STOP}}$ mode at "L" level; also remains open when there is no input signal.
2	FF/$\overline{\text{PLAY}}$	Operation inputs	Input terminal which selects FF mode at "H" level and $\overline{\text{PLAY}}$ mode at "L" level.
3	REW/$\overline{\text{REC}}$	Operation inputs	Input terminal which selects REW mode at "H" level and $\overline{\text{REC}}$ mode at "L" level. Input $\overline{\text{REC}}$ is effective only when PAUSE or PLAY is input simultaneously.
4	TIMER START	Operation inputs	Input terminal which selects an operating mode just after power supply starts. "H" level selects PLAY mode, "L" level REC mode, and open state STOP mode.
5	$\overline{\text{AUTO}}$	Control inputs	Input terminal which changes operating mode; PLAY to REW, REW to PLAY, and FF to STOP, as a negative pulse (⌐‾‾‾⌐) is detected.
6	$\overline{\text{ANTI}}$ · $\overline{\text{REC}}$	Control inputs	Input terminal which inhibits recording at "L" level.
7	T		Connects the external capacitor (resistor) of an oscillator.
8	GND		Ground
9	MUTE OUT	Outputs	Muting signal output
10	BRK OUT	Outputs	Reel disk brake signal output
11	$\overline{\text{MOTOR(F)}}$ OUT	Outputs	Reel motor forward drive signal output
12	$\overline{\text{MOTOR(R)}}$ OUT	Outputs	Reel motor reverse drive signal output
13	$\overline{\text{PLAY}}$ OUT	Outputs	PLAY signal output
14	$\overline{\text{PAUSE}}$ OUT	Outputs	PAUSE signal output
15	$\overline{\text{REC}}$ OUT	Outputs	Recording signal output
16	VCC		Power

Output levels of IC501 (M54886P) in each operating mode

Output / Pin / Mode	$\overline{\text{PAUSE}}$ 14	MUTE* 9	$\overline{\text{REC}}$ 15	$\overline{\text{PLAY}}$ 13	BRK* 10	$\overline{\text{MOTOR(F)}}$ 11	$\overline{\text{MOTOR(R)}}$ 12
STOP	H	H	H	H	L	H	H
FF	H	H	H	H	H	L	H
REW	H	H	H	H	H	H	L
PLAY	H	L	H	L	H	L	H
REC	H	L	L	L	H	L	H
REC/PAUSE	L	L	L	H	L	H	H
PAUSE	L	H	H	H	L	H	H

Signals marked with * are active at "H" and other at "L".

Control



levels of IC501 (M54886P) in each operating mode

SE	MUTE *	REC	PLAY	BRK *	MOTOR(F)	MOTOR(R)
	9	15	13	10	11	12
	H	H	H	L	H	H
	H	H	H	H	L	H
	H	H	H	H	H	L
	L	H	L	H	L	H
	L	L	L	H	L	H
	L	L	H	L	H	H
	H	H	H	L	H	H

* are active at "H" and other at "L".

		STOP	FF	REW	PLAY	REC	PLAY PAUSE	REC PAUSE	Remarks
X501	B	0.7V at approx 2 sec when FF mode change to other mode, and 0V at other mode.							
	C	0V at approx 2 sec when FF mode change to other mode, and the same as 7 pin of IC 501 at other mode.							
	E	0	0	0	0	0	0	0	
X502	B	4.2	0.81	4.21	≒ 0	≒ 0	4.20	4.20	
	C	5	0.2	5	5	5	5	5	
	E	4.6	≒ 0	4.6	≒ 0	≒ 0	4.6	4.6	
X503	B	0.7	0.7	0.7	0.1	0.1	0.7	0.7	
	C	≒ 0	≒ 0	≒ 0	5.4	5.4	≒ 0	≒ 0	$\overline{O\ Play}$ is inversion signal
	E	0	0	0	0	0	0	0	
X504	B	0.7	≒ 0	0.7	≒ 0	≒ 0	0.7	0.7	
	C	≒ 0	10.3	≒ 0	7.6	7.6	≒ 0	≒ 0	$\overline{O\ M(F)}$ is inversion signal
	E	0	0	0	0	0	0	0	
X505	B	≒ 0	≒ 0	≒ 0	0.81	0.81	≒ 0	≒ 0	
	C	15.9	15.5	15.5	≒ 0	≒ 0	15.9	15.9	Play solenoid driver
	E	0	0	0	0	0	0	0	
X506	B	≒ 0	≒ 0	0.7	≒ 0	≒ 0	≒ 0	≒ 0	
	C	0	9.8	≒ 0	6.9	6.9	≒ 0	≒ 0	M(F) side driver is no operation at rewind mode.
	E	0	0	0	0	0	0	0	
X507	B	0	9.8	≒ 0	6.9	6.9	≒ 0	≒ 0	Same as collector of X506
	C	20	19	20	19.3	19.3	20	20	Reel motor operate at forward direction (FF, PLAY, REC)
	E	≒ 0	9.18	≒ 0	6.3	6.3	≒ 0	≒ 0	Predriver
X508	B	≒ 0	9.15	≒ 0	6.26	6.26	≒ 0	≒ 0	Reel motor operate at forward direction (FF, PLAY, REC)
	C	16	13.7	14	12.4	12.4	16	16	
	E	≒ 0	8.6	≒ 0	5.7	5.7	≒ 0	≒ 0	Driver is positive
X509	B	≒ 0	≒ 0	0.74	≒ 0	≒ 0	≒ 0	≒ 0	Reel motor operate at reverse direction (Rewind)
	C	≒ 0	8.6	≒ 0	5.7	5.7	≒ 0	≒ 0	Same as emitter of X508 — Driver is negative
	E	0	0	0	0	0	0	0	
X510	B	≒ 0	≒ 0	9.23	≒ 0	≒ 0	≒ 0	≒ 0	Reel motor operate at reverse direction (Rewind)
	C	16	13.7	14	12.4	12.4	16	16	Same as collector of X508 — Driver is positive
	E	≒ 0	≒ 0	8.58	≒ 0	≒ 0	≒ 0	≒ 0	
X511	B	≒ 0	0.75	≒ 0	0.76	0.76	≒ 0	≒ 0	Reel motor operate at forward direction (FF, PLAY, REC)
	C	≒ 0	≒ 0	8.58	≒ 0	≒ 0	≒ 0	≒ 0	Same as emitter of X510 — Driver is negative
	E	0	0	0	0	0	0	0	
X512	B	0	0	9.86	≒ 0	≒ 0	0	0	Reel motor operate at reverse direction (Rewind)
	C	20	20	20	20	20	20	20	Predriver
	E	0	≒ 0	9.26	≒ 0	≒ 0	≒ 0	≒ 0	
X513	B	0.66	0.66	≒ 0	0.66	0.66	0.66	0.66	$\overline{OM(F)}$ signal is inversion, and reel motor operate inversion direction when changing to STOP, PAUSE mode from PLAY or REC mode. Signal is inversion buffer.
	C	≒ 0	≒ 0	10.37	≒ 0	≒ 0	≒ 0	≒ 0	
	E	0	0	0	0	0	0	0	
X514	B	0.27	—	—	—	—	0.27	0.27	Tape running 0.7V / 0.27V; FF, Rew 0.2V / 0V; Play, Rec 0.4V / 0V — Auto stop
	C	0.6	≒ 0	≒ 0	≒ 0	≒ 0	0.6	0.6	
	E	0	0	0	0	0	0	0	
X515	B	≒ 0	0	0	0	0	0	0	
	C	2.55	2.55	2.55	2.55	2.55	2.55	2.55	(Turns to 0V briefly, about 1.5 second after tape travel stops.) — Auto stop
	E	0	0	0	0	0	0	0	
X516	B	0	0.7	0.7	0.7	0.7	0	0	Other mode ⟶ at Rec Play or Play mode.
	C	0	0	0	0	0	0	0	Collector voltage become 0.7V for about 50m sec.
	E	0	0	0	0	0	0	0	
X517	B	0	0	0	0	0	0	0	Other mode ⟶ at Rec Play or Play mode. Collector voltage — 0V, and base voltage — 0.7V for about 50m sec. High ripple — Play solenoid acceleration
	C	30	30	30	30	30	30	30	
	E	0	0	0	0	0	0	0	
X518	B	30	30	30	30	30	30	30	Other mode ⟶ at Rec Play or Play. Collector — Approx. 25V, Base — Approx. 25V, Emitter — Approx. 25V (for about 50m sec) — Play solenoid acceleration
	C	15	15	15	15	15	15	15	
	E	30	30	30	30	30	30	30	
X801	B	4.4V for about 4 seconds after power supply starts and 5V thereafter.							
	C	5V for about 4 seconds after power supply starts and 0V thereafter.							
X802	B	0.6V for about 4 seconds after power supply starts and 0V thereafter.							
	C	0V for about 4 seconds after power supply starts and 5V thereafter.							

Ref. No.	Parts No.	Parts Name	Remarks		Q'ty
R911	QRD147J-123S	C. Resistor	12kΩ	¼W	1
R913,925,976	QRD141J-392SY	"	3.9kΩ	"	3
R914	QRD147J-561S	"	560Ω	"	1
R915,195,295	" -822S	"	8.2kΩ	"	3
R916,968	QRD141J-272SY	"	2.7kΩ	"	2
R923	QRD143J-221S	"	220Ω	"	1
R927	QRD141J-272SY	"	2.7kΩ	"	1
R931	⚠QRD149J-221S	Unflammable Resistor	220Ω	"	1
R934,936	QRD141J-562SY	C. Resistor	5.6kΩ	"	2
R959	⚠QRG019J-220	OMF. Resistor	22Ω	1W	1
R965	QRD147J-221S	C. Resistor	220Ω	¼W	1
R969	⚠QRD149J-121S	Unflammable Resistor	56Ω	"	1
R970	⚠QRD126K-181	"	180Ω	½W	1
R971	⚠QRD149J-680S	"	68Ω	"	1
R972	⚠QRH144J-390	Fusible Resistor	39Ω	"	1
R973,974	QRD141J-473SY	C. Resistor	47Ω	¼W	2
R975	QRD147J-6R8S	"	6.8Ω	"	1
	V44611-003	Formed Bus Wire	15mm		2
	V44611-002	"	10mm		1
	V44611-005	"	12.5mm		2
	QWY123-022	Bus Wire			18
VR101,201	QVP8A0B-024	V. Resistor	PB, EQ		2
VR102,202	" -024	"	PB Level		2
VR103,203	" -023	"	Meter		2
VR105,205	QVE5A3A-024F	"	Input		1
VR106,206	QVP8A0B-024	"	Rec. Level		2
VR107,207	QVP4A0B-224	"	Bias SF		2
VR108,208	" -224	"	Bias SA		2
VR109,209	" -104	"	Bias Metal		2
C101,201,172,272	QCS11HJ-391	C. Capacitor	390pF	50V	4
C102,202,130,230	QEB41EM-106M	E. Capacitor (Low Leak)	10μF	25V	4
C103,203	" -106N	"	10μF	"	2
C104,204	QCS11HK-101	C. Capacitor	100pF	50V	2
C105,205,925 166,266	QFM41HJ-103	Mylar Capacitor	0.01μF	"	5
C106,206	QCS11HK-680	C. Capacitor	68pF	"	2
C107,207,143,243 906,927,949	QET41HR-106N	E. Capacitor	10μF	"	7
C108,208	QEB41EM-475M	E. Capacitor (Low Leak)	4.7μF	25V	2
C109,209,144,244 155,255,173,273 907	QET41ER-336N	E. Capacitor	33μF	"	9
C110,210	QFM41HJ-123	Mylar Capacitor	0.012μF	50V	2
C111,211,168,268	QFM41HJ-332	"	0.0033μF	"	4
C112,212	" -122	"	0.0012μF	"	2
C121,221,122,222 153,253	QEB41HM-105M	E. Capacitor (Low Leak)	1μF	"	6
C123,223	QFM41HK-103	Mylar Capacitor	0.01μF	"	2
C124,224,135,235 141,241,161,261 170,270,177,277 178,278,179,279 941	QET41HR-105N	E. Capacitor	1μF	"	17
C125,225	QCS11HJ-201	C. Capacitor	200pF	"	2
C126,226,162,262	QFM41HJ-152	Mylar Capacitor	0.0015μF	"	4
C127,227	QFM41HK-222	"	0.0022μF	"	2
C128,228	QFM41HJ-273	"	0.027μF	"	2
C129,229,151,251	QEB41EM-335M	E. Capacitor (Low Leak)	3.3μF	25V	4
C131,231,142,242	QET41CR-476N	E. Capacitor	47μF	16V	4
C132,232,923,924	QFM41HJ-472	Mylar Capacitor	0.0047μF	50V	4

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
C133,233,134,234	QET41HR-335N	E. Capacitor	3.3μF 〃	4
C152,252	QCS11HK-471	C. Capacitor	470pF 〃	2
C154,254	QET41AR-476N	E. Capacitor	47μF 10V	2
C163,263	QFM41HJ-102	Mylar Capacitor	0.001μF 50V	2
C164,264	QCS11HJ-681	C. Capacitor	680pF 〃	2
C165,265	QFM41HJ-154	Mylar Capacitor	0.15μF 〃	2
C167,267	QFM41HJ-562	〃	0.0056μF 〃	2
C171,271	QCS12HJ-201	C. Capacitor	200pF 〃	2
C176,276	QCY12HK-221	〃	220pF 〃	2
C901,948	QET41ER-227N	E. Capacitor	220μF 25V	2
C902	QET41HR-475N	〃	4.7μF 50V	1
C911	QEB41HM-104M	E. Capacitor (Low Leak)	0.1μF 〃	1
C912	QET41AR-336N	E. Capacitor	33μF 10V	1
C913	QET41AR-107N	〃	100μF 〃	1
C921,950	QCF11HP-103	C. Capacitor	0.01μF 50V	2
C922	QFP82AJ-223	Polypropylene Capacitor	0.022μF 10V	1
C929	QFP42AJ-682	〃	0.0068μF 10V	1
C930	QET40JR-337N	E. Capacitor	330μF 6.3V	1
C942	QET40JR-107N	〃	100μF 〃	1
C943	⚠QCF11HP-473	C. Capacitor	0.047μF 50V	1
C944	⚠QET41VR-108N	E. Capacitor	1000μF 35V	1
C945,946	⚠QCF12HP-103	C. Capacitor	0.01μF 50V	2
C947	⚠QET41ER-108N	E. Capacitor	1000μF 25V	1
D101,201,907,908	OA90	Diode		4
D901~904,906	MA150	Diode		5
D905,910	RD6.8E (B)	Zener Diode		2
D911,912,915,916	IDE2-B	Diode		4
D917	⚠RD5.1F (B)	Zener Diode		1
X101,201,102,202	2SC1980 (T.U)	Transistor		4
X103,203,106,206 109,209,113,213 114,214,902~905 907,910~913	2SC1685 (R.S)	〃		19
X104,204	2SC1327 (T.U) MS	〃		2
X105,205,108,208	2SC1327 (T.U)	〃		4
X107,207,110,210	2SC1317 (R.S) NC	〃		4
X111,211	2SC1327 (U)	〃		2
X901	2SA921 (T.U)	〃		1
X906	2SA564 (R.S)	〃		1
IC101,201	AN7362	IC		2
IC901	UPC4557C	〃		1
IC903	UPC78M15H	〃		1
L101,201,105,205	VQP0001-183S	Inductor		4
L102,202	〃 -562S	〃		2
L901	〃 102S	〃		1
T901	VQH1009-011	OSC Coil		1
S1	QSL2209-002	Lever Switch	Input	1
S2	QSL2309-002	〃	ANRS	1
S3	QSL8409-001	〃	Tape Selector	1
	VMJ5002-001	Jack Ass'y	MIC & Headphone	1
	VMJ6003-002	〃	PIN	1
CN901	QMV5005-006	Plug Ass'y	R/P Head	1
CN902	〃 -003	〃	E Head	1
	VKL4711-001	Heat Sink	for Power IC	1
	LPSP3006ZS	Screw	〃	1
	E43727-002	Wrapping Tab		21
	VMZ0005-001	Post Pin		1
	TAZ000331-02	Fuse Holder	for Fuse	4
	QMF51A2-1R25	Fuse	KD-A33 A/B/E	2
	⚠QMF51A2-1R25BS	Fuse	KD-A33B	2
	TAZ000509-10	Fuse Seal	T1.25A, KD-A33B	1

Mecha. Control P.W. Board Parts List

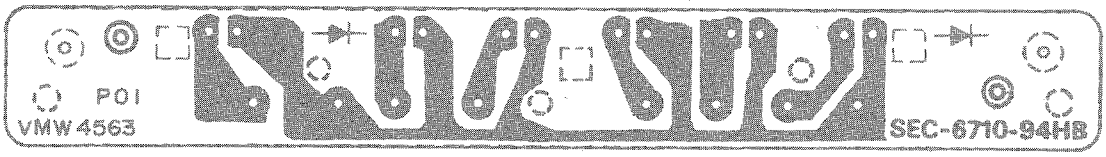
⚠ parts are safety assurance parts.
When replacing those parts, make sure to use the specified one.

Ref. No.	Parts No.	Parts Name	Remarks		Q'ty
	VMW3530-001	P.W. Board			1
R501~504	QRD141J-472S	C. Resistor	4.7kΩ	¼W	7
518,525,548					
R506,507	" -271S	"	270Ω	"	2
R510	" -331S	"	330Ω	"	1
R511,515,521,526	" -103S	"	10kΩ	"	6
528,546					
R512	" -153S	"	15kΩ	"	1
R513	QRD143J-121S	"	120Ω	"	1
R514	" -104S	"	100kΩ	"	1
R516,517,540	QRD141J-222S	"	2.2kΩ	"	3
R523,532,537,542	QRD143J-392S	"	3.9kΩ	"	4
R527	QRD123J-122	"	1.2kΩ	½W	1
R529	QRD143J-332S	"	3.3kΩ	¼W	1
R530	" -391S	"	390Ω	"	1
R531,545	" -102S	"	1kΩ	"	2
R533,544	" -393S	"	39kΩ	"	2
R534	QRD141J-221S	"	220Ω	"	1
R535	QRD143J-221S	"	220Ω	"	1
R536,539	QRD141J-101S	"	100Ω	"	2
R538,549,550	QRD143J-103S	"	10kΩ	"	4
553					
R541	⚠ QRG019J-220	O.M.F. Resistor	22Ω	1W	1
R543	QRD143J-332S	C. Resistor	3.3kΩ	¼W	1
R547	" -103S	"	10kΩ	"	1
R551	" -223S	"	22kΩ	"	1
R552	" -101S	"	100Ω	"	1
R554	" -472S	"	4.7kΩ	"	1
R555	" -273S	"	27kΩ	"	1
R556	" -474S	"	470kΩ	"	1
R560	⚠ QRD126K-220	Unflammable Resistor	22Ω	½W	1
R561	⚠ QRX029J-8R2	M.F. Resistor	8.2Ω	2W	1
R563	QRD121K-101	C. Resistor	100Ω	½W	1
R564	QRD143J-222S	"	2.2kΩ	¼W	1
R565	" -562S	"	5.6kΩ	"	1
R566	⚠ QRD149J-4R7S	Unflammable Resistor	4.7Ω	"	1
C501~503	QCF11HP-103	F.C. Capacitor	0.01μF	50V	3
C504,507,511	QET41HR-106N	E. Capacitor	10μF	"	3
C505	QET41HR-474N	"	0.47μF	"	1
C506,508	QET41HR-475N	"	4.7μF	"	2
C509,701	QET41HR-105N	E. Capacitor (Low Leak)	1μF	"	2
C510	QET40JR-477N	E. Capacitor	470μF	6.3V	1
C512	QET41ER-107N	"	100μF	25V	1
C513	" -108N	"	1000μF	"	1
L701,702	T41572-001	Inductor			2
D501~503,505	MA150	Si, Diode			4
D504	RD2.2E (B)	Zener Diode			1
D506	⚠ 10E1-B	Si, Diode			1
D701	10E1	"			1
X501~504,506	2SC1685 (R.S)	Transistor			10
513~517					
X505	2SC1384 (R.S)NC	"			1
X507,512	2SC1685 (S.T)	"			2
X508,510	2SC1383 (R.S) NC	"			2
X509,511	2SC1317 (R.S) NC	"			2
X518	2SA684 (R.S) NC	"			1
IC501	M54886P	I.C			1
IC502	DN6835	"			1

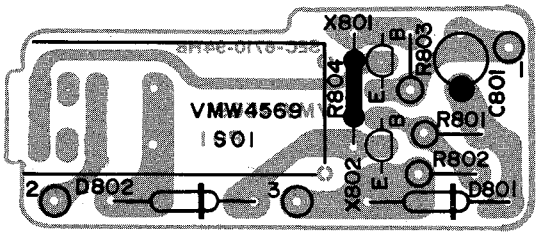
Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
	V44611-002	F. Bus Wire	10mm	5
	V44611-005	"	12.5mm	1
CN501	QMV5004-010	Plug Ass'y		1
CN502	" -006	"		1
CN503	" -010	"		1
CN504	" -003	"		1

Other P.W. Board Parts

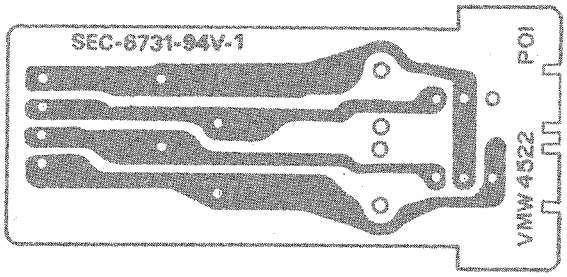
LED P.W. Board



Timer Switch P.W. Board

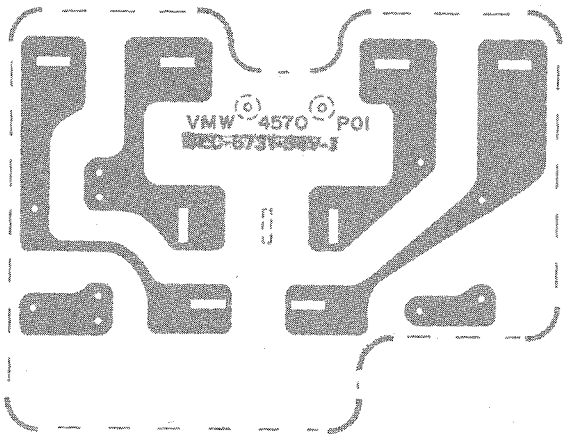


Slide Switch P.W. Board

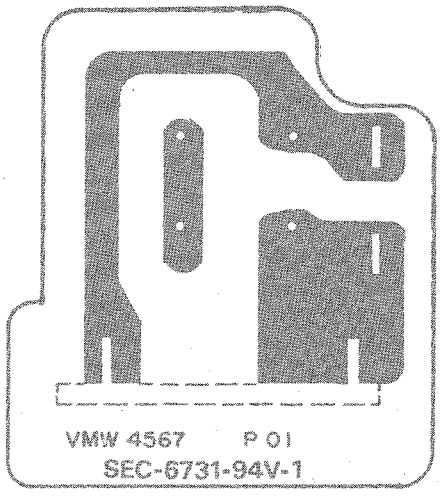


Power Switch P.W. Board

KD-A33 A/B/C/E/J



KD-A33U



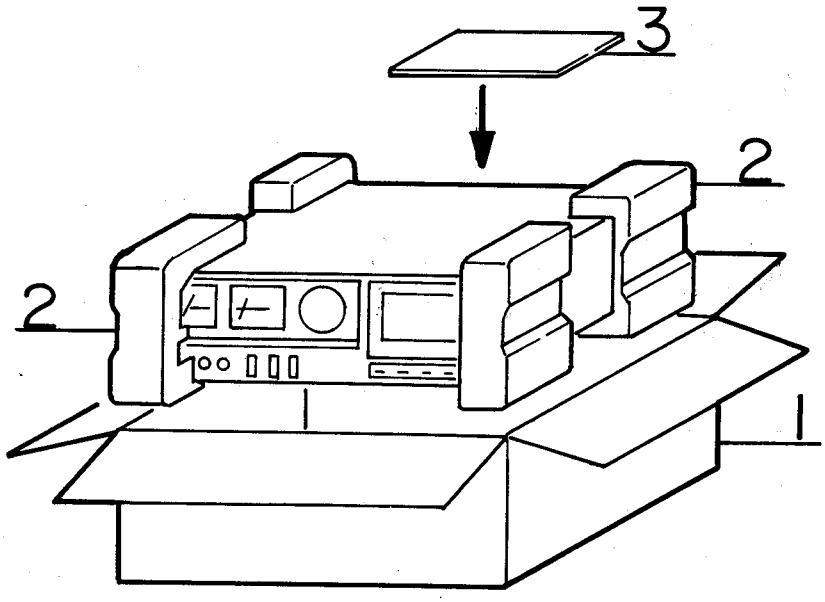
Other P.W. Board Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
(LED)				
	VMW4563-001	P.W. Board		1
D306	SLP-155B-01V	LED		1
	VJD3214-002	LED Holder		1
(Timer Switch)				
	VMW4569-001	P.W. Board		1
R801	QRD143J-683S	C. Resistor	68kΩ ¼W	1
R802,803	" -473S	"	47kΩ "	2
R804	QRD141-683S	"	68kΩ "	1
C801	QET41CR-336N	E. Capacitor	33μF 16V	1
D801,802	MA150	Si, Diode		2
X801	2SA564 (R.S)	Si, Transistor		1
X802	2SC1685 (R.S)	"		1
	QSS2301-102	Slide Switch	for Timer	1
(Power Switch)				
	⚠VMW4570-001	P.W. Board	Power Switch (KD-A33 A/B/C/E/J)	1
	⚠VMW4567-001	"	Power Switch (KD-A33U)	1
	⚠QSP2111-011BS	Power Switch		1
C01,C02	⚠QFZ9010-103	M.P. Capacitor	0.01μF	2
R01,R02	⚠QRD149J-820S	Unflammable Resistor	82Ω ¼W	2
	E40130-001	Tab		4
(Slide Switch)				
	VMW4522-001	P.W.B. (L)		1
	QSP0029-001	Slide Switch		2
	QMV5004-004	Connector		1

Accessories

Parts No.	Parts Name	Remarks	Q'ty
VMP0002-00A	PIN Cord	KD-A33 A/C/J/U	2
CN-201	DIN Cord	KD-A33 B/E	1
VYA4001-001	Head Cleaning Stick		1
VNN0056-301	Instruction Book		1
VND4013-001	Warning Label	for Disconnection, KD-A33 A/B/E	1
T46328-003	Caution Label	for V Selector, KD-A33 A/B	1
BT20029B	Warranty Card	KD-A33 A	1
BT20013C	Guarantee Certificate	KD-A33 B	1
TJL000443-01	Seal	Made in Japan, KD-A33 B	1
	BEAB Label	KD-A33 B	1
QZL1002-003BS	Warning Label	for 2-pin Power Cord, KD-A33 B	1
VNC5004-001	Mark Sticker	DIN45 500, KD-A33 B/E	1
BT20025C	Warranty Card	KD-A33 C	1
T44362-001	CSA Marker	KD-A33 C	1
TLT000505-01	UL/CSA Caution Label	KD-A33 C/J	2
T46328-004	Caution Label	for Voltage Selector, KD-A33 E	1
BT20032B	Warranty Card	KD-A33 J/U (U- for PX. EES)	1
BT20042	Special Reply Card	"	1
E7795-1	EP Mark	for PX. EES, KD-A33 U	1
V04062-001	Siemens Plug	KD-A33 U	1
T46328-001	Caution Label	"	1
VNC5311-101	Caution Card	for EES, KD-A33 U	1
VPZ4001-001	Serial Ticket	KD-A33 A/B/E/J/U	1
T43758-001	Serial Ticket	KD-A33 C	2

Packing



Packing Material Parts List

Ref. No.	Parts No.	Parts Name	Remarks	Q'ty
1~2	VPA3135-00B	Packing Case Ass'y	KD-A33A/B/E/J/U	1 set
1~2	" -00C	"	KD-A33C	1 set
1	VPA3135-005	Case	KD-A33A/B/E/J/U	1
1	VPA3135-006	"	KD-A33C	1
2	VPH3111-001	Cushion (L)		1
2	VPH3112-001	Cushion (R)		1
	VPK4134-001	Spacer		1
	QPGA060-06005	Envelope	for Set	1
	AP4056A-036	"	for Power cord, Provided cord	2
3	AP4056A-077	"	for Instruction Book	1
	TKS000501-08	Sheet	for Set	1

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